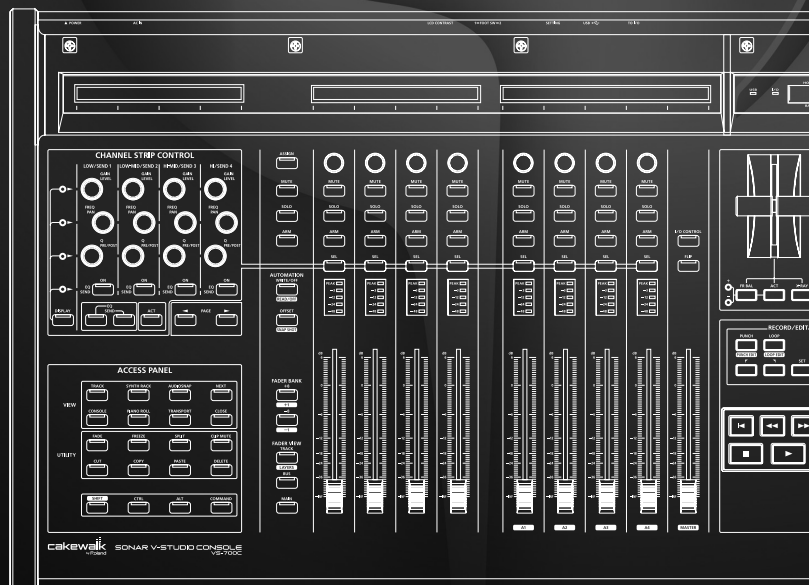
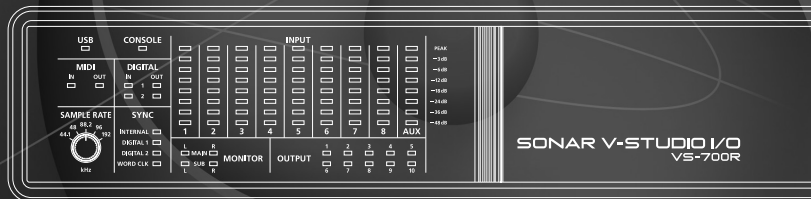


SONAR V-STUDIO

VS-700 Owner's Manual



WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
ATTENTION: RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR		
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS.

IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS

WARNING - When using electric products, basic precautions should always be followed, including the following:


1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturers instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

For the U.K.

WARNING: THIS APPARATUS MUST BE EARTHED

IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.
GREEN-AND-YELLOW: EARTH, BLUE: NEUTRAL, BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol  or coloured GREEN or GREEN-AND-YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

Before using this unit, carefully read the sections entitled: "IMPORTANT SAFETY INSTRUCTIONS" (p. 2), "USING THE UNIT SAFELY" (p. 3), and "IMPORTANT NOTES" (p. 6). These sections provide important information concerning the proper operation of the unit. Additionally, in order to feel assured that you have gained a good grasp of every feature provided by your new unit, VS-700 Owner's Manual should be read in its entirety. The manual should be saved and kept on hand as a convenient reference.

USING THE UNIT SAFELY

INSTRUCTIONS FOR THE PREVENTION OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

About ⚠ WARNING and ⚠ CAUTION Notices


⚠ WARNING	Used for instructions intended to alert the user to the risk of death or severe injury should the unit be used improperly.
⚠ CAUTION	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. * Material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.


About the Symbols



⚠	The ⚠ symbol alerts the user to important instructions or warnings. The specific meaning of the symbol is determined by the design contained within the triangle. In the case of the symbol at left, it is used for general cautions, warnings, or alerts to danger.
⊘	The ⊘ symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the unit must never be disassembled.
Ⓢ	The Ⓢ symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the power-cord plug must be unplugged from the outlet.


ALWAYS OBSERVE THE FOLLOWING

⚠ WARNING


- Connect mains plug of this model to a mains socket outlet with a protective earthing connection. 


- Do not attempt to repair the unit, or replace parts within it (except when this manual provides specific instructions directing you to do so). Refer all servicing to your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" (separate leaflet). 


- Never install the unit in any of the following locations.
 - Subject to temperature extremes (e.g., direct sunlight in an enclosed vehicle, near a heating duct, on top of heat-generating equipment); or are 
 - Damp (e.g., baths, washrooms, on wet floors); or are 
 - Exposed to steam or smoke; or are
 - Subject to salt exposure; or are
 - Humid; or are
 - Exposed to rain; or are
 - Dusty or sandy; or are
 - Subject to high levels of vibration and shakiness.


- Make sure you always have the unit placed so it is level and sure to remain stable. Never place it on stands that could wobble, or on inclined surfaces. 



⚠ WARNING

- The unit should be connected to a power supply only of the type described in the operating instructions, or as marked on the rear side of the unit. Refer to p. 173 - for power requirements. 


- Use only the attached power-supply cord. Also, the supplied power cord must not be used with any other device. 


- Do not excessively twist or bend the power cord, nor place heavy objects on it. Doing so can damage the cord, producing severed elements and short circuits. Damaged cords are fire and shock hazards! 


- This unit, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level, or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should immediately stop using the unit, and consult an audiologist. 


- Do not allow any objects (e.g., flammable material, coins, pins); or liquids of any kind (water, soft drinks, etc.) to penetrate the unit. 



⚠ WARNING


- In households with small children, an adult should provide supervision until the child is capable of following all the rules essential for the safe operation of the unit. 


- Protect the unit from strong impact. (Do not drop it!) 

- Do not force the unit's power-supply cord to share an outlet with an unreasonable number of other devices. Be especially careful when using extension cords—the total power used by all devices you have connected to the extension cord's outlet must never exceed the power rating (watts/amperes) for the extension cord. Excessive loads can cause the insulation on the cord to heat up and eventually melt through. 


- Before using the unit in a foreign country, consult with your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" (separate leaflet). 


- Always turn the unit off and unplug the power cord before attempting installation of the circuit board (ARX series; p. 155). 


- DO NOT play a CD-ROM/DVD-ROM disc on a conventional audio CD player. The resulting sound may be of a level that could cause permanent hearing loss. Damage to speakers or other system components may result. 


- Do not put anything that contains water (e.g., flower vases) on this unit. Also, avoid the use of insecticides, perfumes, alcohol, nail polish, spray cans, etc., near the unit. Swiftly wipe away any liquid that spills on the unit using a dry, soft cloth. 


⚠ CAUTION


- The unit should be located so that its location or position does not interfere with its proper ventilation. 


- Always grasp only the plug on the power-supply cord when plugging into, or unplugging from, an outlet or this unit. 


- At regular intervals, you should unplug the power plug and clean it by using a dry cloth to wipe all dust and other accumulations away from its prongs. Also, disconnect the power plug from the power outlet whenever the unit is to remain unused for an extended period of time. Any accumulation of dust between the power plug and the power outlet can result in poor insulation and lead to fire. 


- Try to prevent cords and cables from becoming entangled. Also, all cords and cables should be placed so they are out of the reach of children. 


- Never climb on top of, nor place heavy objects on the unit. 

- Never handle the power cord or its plugs with wet hands when plugging into, or unplugging from, an outlet or this unit. 


- Before moving the unit, disconnect the power plug from the outlet, and pull out all cords from external devices. 


- Before cleaning the unit, turn off the power and unplug the power cord from the outlet (p. 28). 

- Whenever you suspect the possibility of lightning in your area, pull the plug on the power cord out of the outlet. 

- Install only the specified circuit board (ARX series). Remove only the specified screws (p. 155). 

⚠ CAUTION

- Should you remove screws of the ARX expansion board cover (p. 156) or the rackmount brackets (p. 163), keep them in a safe place out of children's reach, so there is no chance of them being swallowed accidentally. 

- Always turn the phantom power off when connecting any device other than condenser microphones that require phantom power. You risk causing damage if you mistakenly supply phantom power to dynamic microphones, audio playback devices, or other devices that don't require such power. Be sure to check the specifications of any microphone you intend to use by referring to the manual that came with it. 

(This instrument's phantom power: 48 V DC, 10mA Max)

IMPORTANT NOTES

Power Supply

- Do not connect this unit to the same electrical outlet that is being used by an electrical appliance that is controlled by an inverter (such as a refrigerator, washing machine, microwave oven, or air conditioner), or that contains a motor. Depending on the way in which the electrical appliance is used, power supply noise may cause this unit to malfunction or may produce audible noise. If it is not practical to use a separate electrical outlet, connect a power supply noise filter between this unit and the electrical outlet.
- Before connecting this unit to other devices, turn off the power to all units. This will help prevent malfunctions and/or damage to speakers or other devices.
- Although the LCD and LEDs are switched off when the POWER switch is switched off, this does not mean that the unit has been completely disconnected from the source of power. If you need to turn off the power completely, first turn off the POWER switch, then unplug the power cord from the power outlet. For this reason, the outlet into which you choose to connect the power cord's plug should be one that is within easy reach and readily accessible.

Placement

- Using the unit near power amplifiers (or other equipment containing large power transformers) may induce hum. To alleviate the problem, change the orientation of this unit; or move it farther away from the source of interference.
- This device may interfere with radio and television reception. Do not use this device in the vicinity of such receivers.
- Noise may be produced if wireless communications devices, such as cell phones, are operated in the vicinity of this unit. Such noise could occur when receiving or initiating a call, or while conversing. Should you experience such problems, you should relocate such wireless devices so they are at a greater distance from this unit, or switch them off.
- Do not expose the unit to direct sunlight, place it near devices that radiate heat, leave it inside an enclosed vehicle, or otherwise subject it to temperature extremes. Excessive heat can deform or discolor the unit.

- When moved from one location to another where the temperature and/or humidity is very different, water droplets (condensation) may form inside the unit. Damage or malfunction may result if you attempt to use the unit in this condition. Therefore, before using the unit, you must allow it to stand for several hours, until the condensation has completely evaporated.
- Depending on the material and temperature of the surface on which you place the unit, its rubber feet may discolor or mar the surface.
You can place a piece of felt or cloth under the rubber feet to prevent this from happening. If you do so, please make sure that the unit will not slip or move accidentally.

Maintenance

- For everyday cleaning, wipe the unit with a soft, dry cloth or one that has been slightly dampened with water. To remove stubborn dirt, use a cloth impregnated with a mild, non-abrasive detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.
- Never use benzine, thinners, alcohol or solvents of any kind, to avoid the possibility of discoloration and/or deformation.

Additional Precautions

- Use a reasonable amount of care when using the unit's buttons, sliders, or other controls; and when using its jacks and connectors. Rough handling can lead to malfunctions.
- Never strike or apply strong pressure to the display.
- A small amount of noise may be heard from the display during normal operation.
- When connecting / disconnecting all cables, grasp the connector itself—never pull on the cable. This way you will avoid causing shorts, or damage to the cable's internal elements.
- A small amount of heat will radiate from the unit during normal operation.
- To avoid disturbing your neighbors, try to keep the unit's volume at reasonable levels. You may prefer to use headphones, so you do not need to be concerned about those around you (especially when it is late at night).

- When you need to transport the unit, package it in the box (including padding) that it came in, if possible. Otherwise, you will need to use equivalent packaging materials.
- Some connection cables contain resistors. Do not use cables that incorporate resistors for connecting to this unit. The use of such cables can cause the sound level to be extremely low, or impossible to hear. For information on cable specifications, contact the manufacturer of the cable.

Copyright

- Recording, duplication, distribution, sale, lease, performance, or broadcast of copyrighted material (musical works, visual works, broadcasts, live performances, etc.) belonging to a third party in part or in whole without the permission of the copyright owner is forbidden by law.
- This product can be used to record or duplicate audio or visual material without being limited by certain technological copy-protection measures. This is due to the fact that this product is intended to be used for the purpose of producing original music or video material, and is therefore designed so that material that does not infringe copyrights belonging to others (for example, your own original works) can be recorded or duplicated freely.
- Do not use this unit for purposes that could infringe on a copyright held by a third party. We assume no responsibility whatsoever with regard to any infringements of third-party copyrights arising through your use of this unit.
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 - * ASIO and VST are trademarks of Steinberg Media Technologies AG.
 - * MMP (Moore Microprocessor Portfolio) refers to a patent portfolio concerned with microprocessor architecture, which was developed by Technology Properties Limited (TPL). Roland has licensed this technology from the TPL Group.
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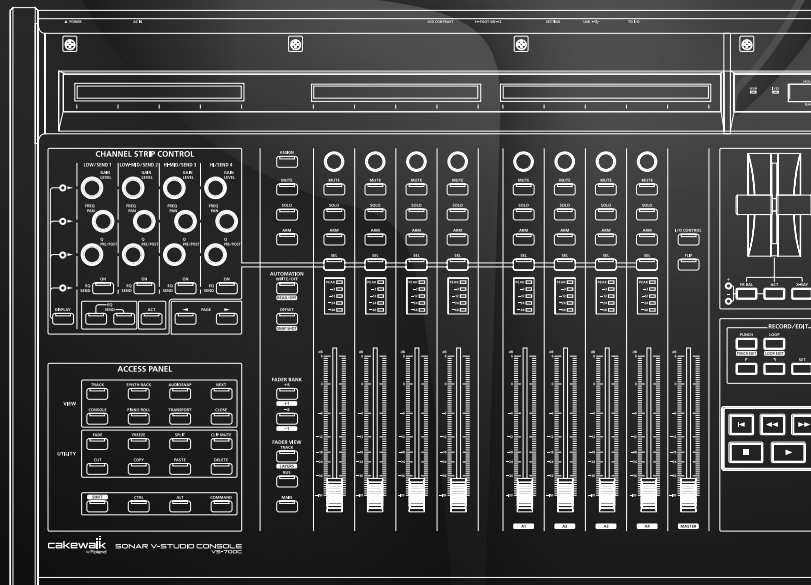
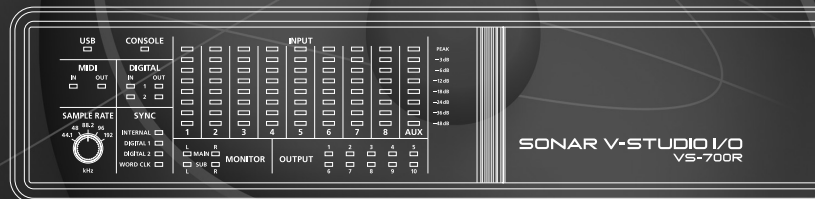
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Overview of the VS-700



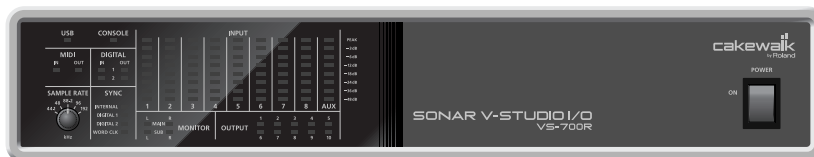
Main Features

Main Features of the VS-700C Console



- Control of mix and plug-in parameters with real-time visual feedback
- Touch-sensitive motorized faders
- Control over SONAR, plug-in effects and soft synths
- Many buttons to trigger SONAR commands plus 16 assignable buttons
- Multiple modifier buttons to extend the functionality of other controls
- Tape-style transport controls
- Jog/shuttle wheel with cursor-style buttons for scrubbing, editing, zooming and scrolling
- Surround joystick panner
- Meter displays with track names and parameters

Main Features of the VS-700R I/O

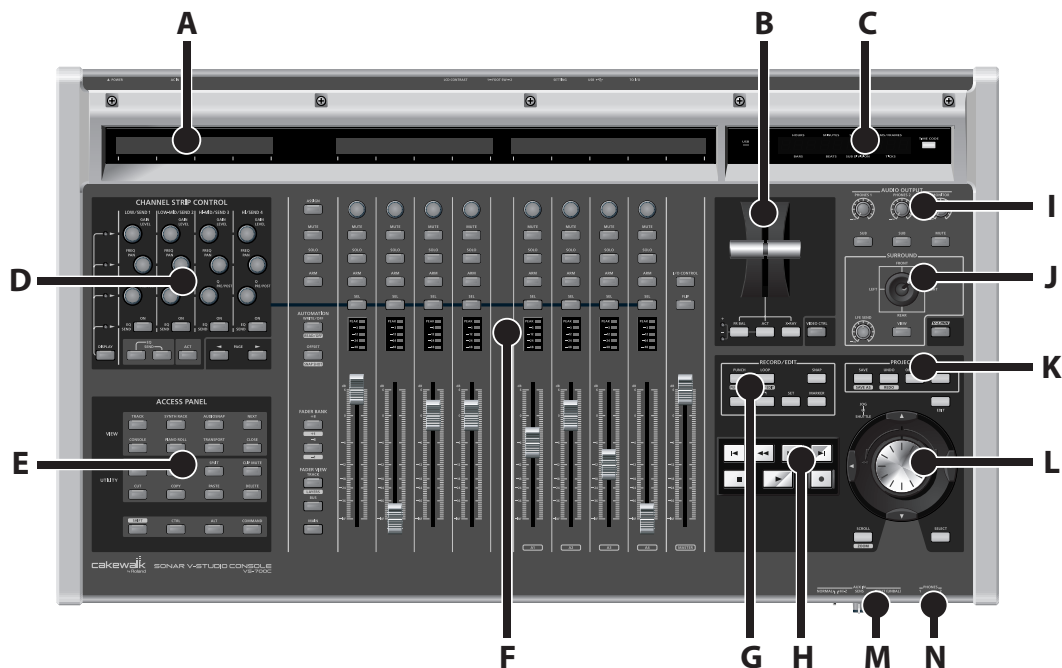


- 19-in/24-out USB 2.0 audio interface
- 24-bit 192 kHz high quality audio
- Eight channels of preamps/compressors built-in
- Built-in Fantom VS synthesizer
- Single slot for ARX series expansion boards

Panel Descriptions

VS-700C Console

Top Panel



A. LCD Display

The VS-700C features three 2-line LCD displays. The left LCD display shows information about the CHANNEL STRIP CONTROL section and the other two LCD displays show information about the channel strips.

→ “LCD Display” (p. 37), (p. 51)

B. T-Bar

The T-Bar lets you control the Front-Rear Balance parameter in the surround panner, an ACT parameter or the X-Ray opacity.

→ “T-Bar Section” (p. 69)

C. Time Display

The VS-700C Console displays the project's current Now time in the top right corner. You can switch the display between SMPTE and Bars|Beats time by pressing the [TIME CODE] button. The default view is Bars|Beats.

→ **"Time Display"** (p. 48)

D. CHANNEL STRIP CONTROL Section

The CHANNEL STRIP CONTROL section lets you control EQ and SEND parameters for the selected channel strip, as well as ACT parameters for the track, bus, effect plug-in or soft synth that has focus in SONAR.

There are 12 rotary encoders and 4 buttons to control EQ, SEND and ACT parameters.

→ **"CHANNEL STRIP CONTROL Section (EQ, SEND and ACT)"** (p. 49)

E. ACCESS PANEL Section

The ACCESS PANEL section provides 16 assignable buttons that you can configure to control different functions in SONAR. There are also 4 modifier buttons that are used to extend the functionality of other VS-700 hardware controls. The modifier buttons are not assignable.

→ **"ACCESS PANEL Section (Assignable Buttons)"** (p. 64)

F. Channel Strips

The Channel Strip section provides eight motorized fader strips with identical controls. You use the channel strips to control up to eight tracks or buses at a time and you can easily switch between different banks of tracks or buses.

→ **"CHANNEL STRIP Section"** (p. 31)

G. RECORD/EDIT Section

The RECORD/EDIT section lets you control punch-recording and looping, select clips or edit regions, and insert or move markers.

→ **"RECORD/EDIT Section"** (p. 71)

H. Transport Section

The transport section provides standard control of RTZ (return to zero), Rewind, Fast Forward, Go to end, Stop, Play and Record.

→ **"Transport Section"** (p. 54)

I. AUDIO OUTPUT Section

The AUDIO OUTPUT section lets you control the volume of the MONITOR output and each headphone output. You can also mute the MONITOR output and assign each headphone to monitor the MAIN/SUB output.

→ **"AUDIO OUTPUT Section"** (p. 70)

J. SURROUND Section

The SURROUND section lets you control surround bus parameters on the selected channel strip.

→ **“SURROUND Section”** (p. 68)

K. PROJECT Section

The PROJECT sections provides convenient access to frequently used commands that normally require a keyboard or mouse, such as Save, Undo/Redo, OK/ENTER and Cancel.

→ **“PROJECT Section”** (p. 56)

L. Jog/Shuttle Wheel

The VS-700C Console jog/shuttle is a combo wheel with cursor buttons, which lets you perform edit, zoom, scroll and select operations.

→ **“JOG/SHUTTLE/CURSOR Section”** (p. 57)

M. AUX IN Jack (Front Panel)

This is a mic/guitar input jack located on the front panel of the console. It supports mic input when the switch is at “NORMAL,” or guitar input when the switch is at [Hi-Z]. Use the SENS knob to adjust the input level. The input signal is output directly to the “VS-700 AUX” port of the audio driver.

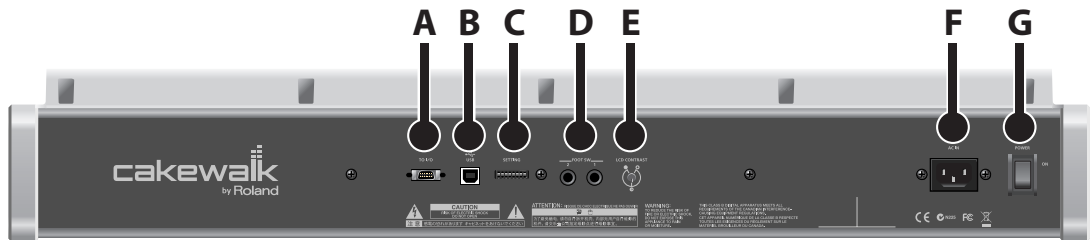
→ **“Connections to the Analog Jacks”** (p. 78)

N. PHONES Jacks (Front Panel)

These are two headphone jacks located on the front panel of the console. They monitor either the MAIN port or SUB port, and each has a switch on the console to select the signal that it will monitor. The volume can be adjusted independently for each jack.

→ **“AUDIO OUTPUT Section”** (p. 70)

Rear Panel



A. TO I/O Connector

Use the dedicated cable to connect the VS-700C Console to the VS-700R I/O unit. Do not use any cable other than the dedicated cable.

→ **“Connecting Your Computer and Sound Reinforcement Equipment”** (p. 27)

B. USB Connector

By connecting the USB connector of the console directly to your computer (without using the VS-700R I/O unit), you can use the console as a control surface.

→ **“Using only the VS-700C Console (Standalone Mode)”** (p. 164)

C. SETTING DIP Switches

Change the settings of these switches if you have connected the console directly to your computer (without using the VS-700R I/O unit).

→ **“Using only the VS-700C Console (Standalone Mode)”** (p. 164)

D. FOOT SW Jacks

Here you can connect two foot switches.

→ **“Starting/Stopping Playback With a Foot Switch”** (p. 55)

E. LCD CONTRAST Knob

This adjusts the brightness of the LCD display.

F. AC Inlet

Connect the included power cord to this inlet.

→ **“Connecting the Power Cord”** (p. 26)

G. POWER ON Switch

Press to turn the power on/off.

→ **“Turning the Power On”** (p. 28)

VS-700R I/O

Front Panel



A. USB Indicator

This will light when the console is connected via USB to your computer.

→ **“If the USB indicator of the VS-700R I/O unit isn’t lit”** (p. 28)

B. CONSOLE Indicator

This will light when the VS-700C console is connected via the dedicated cable and has been detected. If the cable is connected but the console has not been detected, this will blink.

→ **“If the I/O indicator of the VS-700C console or the CONSOLE indicator of the VS-700R I/O unit is blinking”** (p. 28)

C. MIDI IN Indicator

This will light when MIDI messages are received at the MIDI IN connector.

MIDI OUT Indicator

This will light when MIDI messages are transmitted from the MIDI OUT connector.

D. DIGITAL IN Indicators

These will light when audio signals are input to DIGITAL IN 1 or 2.

DIGITAL OUT Indicators

These will light when audio signals are output from DIGITAL OUT 1 or 2.

E. SAMPLE RATE Knob

This specifies the sample rate. In order for this setting to be reflected by the system, you must cycle the power to the VS-700R. If you need to synchronize with another digital device, you must first set this knob to the same sample rate as the master device.

→ **“Switching the Sampling Rate”** (p. 80)

F. SYNC Indicator

This indicates the audio clock status.

→ **“Audio Clock Source”** (p. 82)

G. INPUT Indicators

These indicate the input levels from the INPUT connectors and AUX connectors.

If PEAK has lit, the sound has distorted.



If the cooling fan (p. 24) has stopped turning because of a malfunction, all indicators will blink. For details, refer to **“Troubleshooting”** (p. 171).

H. MONITOR MAIN Indicators

These will light when audio signals are output from MONITOR MAIN.

MONITOR SUB Indicators

These will light when audio signals are output from MONITOR SUB.

I. OUTPUT 1–10 Indicators

These will light when audio signals are output from OUTPUT 1–10.

J. POWER ON Switch

Press this to turn the power on/off.

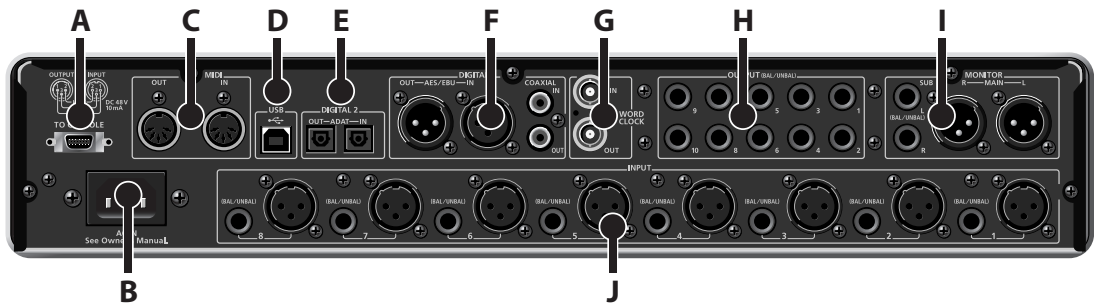
→ **“Turning the Power On”** (p. 28)

K. Rackmount brackets

If you want to install the system in a 19" rack, attach the included rackmount brackets.

→ **“Attaching the Rackmount Brackets”** (p. 163)

Rear Panel



A. TO CONSOLE Connector

Use the dedicated cable to connect this to the VS-700C console. Do not use any cable other than the dedicated cable.
 → “Connecting Your Computer and Sound Reinforcement Equipment” (p. 27)

B. AC Inlet

Connect the included power cord to this inlet.
 → “Connecting the Power Cord” (p. 26)

* For details on the power supply and power consumption, refer to “Specifications” (p. 172).

C. MIDI IN Connector

This is a MIDI input connector. You can connect your MIDI keyboard or MIDI controller here. This can also be used as an MTC input. In the driver, this will appear as “IO MIDI (VS-700).”

MIDI OUT Connector

This is a MIDI output connector. You can connect an external MIDI sound module here. In the driver, this will appear as “IO MIDI (VS-700).”

D. USB Connector

Connect this to a computer that supports USB 2.0.
 → “Connecting Your Computer and Sound Reinforcement Equipment” (p. 27)

NOTE

At first, before connecting anything to this connector, you must install the driver as described in “Getting Started” (separate document). After the driver has been installed and connections have been completed correctly, the USB indicator will light. If the USB indicator isn’t lit, the driver has not been installed correctly. Refer to the troubleshooting section of “Getting Started,” and install the driver once again.

E. DIGITAL 2 OUT Connector

This is an ADAT output connector. You can connect it to an ADAT device and output up to eight channels of audio.

DIGITAL 2 IN Connector

This is an ADAT input connector. It allows up to eight channels of input. The input signals are output directly to the “VS-700 IN DIGITAL2 1-2” – “VS-700 IN DIGITAL2 7-8” ports of the audio driver.

→ “Connections to the Digital Connectors” (p. 79)

F. DIGITAL 1 AES/EBU OUT Connector

This is an AES/EBU format two-channel (stereo) digital output. The same signal is also output to the COAXIAL OUT connector. This will output the signal of the audio driver’s “VS-700 OUT DIGITAL1” port.

DIGITAL 1 AES/EBU IN Connector

This is an AES/EBU format two-channel (stereo) digital input. This is switched with the COAXIAL IN (S/PDIF) connector. The input signal is output directly to the audio driver’s “VS-700 IN DIGITAL1” port.

→ “Connections to the Digital Connectors” (p. 79)

DIGITAL 1 COAXIAL OUT Connector

This is an S/PDIF format two-channel (stereo) digital output. The same signal is also output to the AES/EBU connector. This will output the signal of the audio driver’s “VS-700 OUT DIGITAL1” port.

DIGITAL 1 COAXIAL IN Connector

This is an S/PDIF format two-channel (stereo) digital input. This is switched with the AES/EBU connector. The input signal is output directly to the audio driver’s “VS-700 IN DIGITAL1” port.

→ “Connections to the Digital Connectors” (p. 79)

G. WORDCLOCK IN Connector

This is a WORDCLOCK input connector.



For details on checking and selecting the clock source, refer to “Audio Clock Source” (p. 82).

WORDCLOCK OUT Connector

This is a WORDCLOCK output connector. It outputs a clock at all times.

H. OUTPUT 1–10 Jacks

These are ten channels of audio output connectors. They allow a broad range of connections, such as for multi-output in a surround system, or as sends for outboard effects. These are balanced outputs. They output the signals of the audio driver’s “1-2 (VS-700)” – “VS-700 OUT 9-10” ports.

I. MONITOR MAIN Jacks

These are the main monitor output jacks. They are balanced outputs. They output the signals of the audio driver's "VS-700 MAIN" port.

MONITOR SUB Jacks

These are sub-monitor output jacks. They provide balanced or unbalanced output. They output the signals of the audio driver's "VS-700 SUB" port.

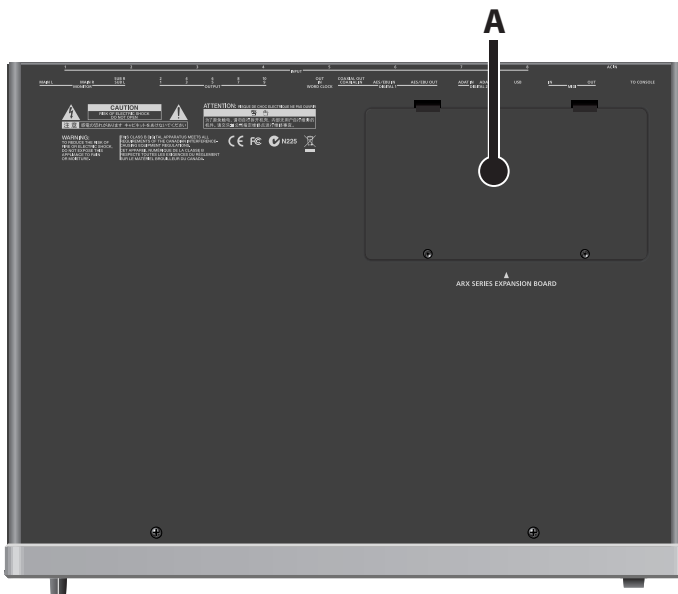
J. INPUT 1–8 Jacks

These are eight channels of analog audio input. Both XLR type (balanced) and phone type (balanced or unbalanced) input jacks are provided. A mic preamp and compressor are provided on each channel. Phantom power is provided to the XLR jacks (switchable for each channel). The input signals are output directly to the audio driver's "VS-700 IN 1-2" – "VS-700 IN 7-8" ports.

* The XLR jacks and phone jacks cannot be connected simultaneously.

→ "Connections to the Analog Jacks" (p. 78)

Top Panel

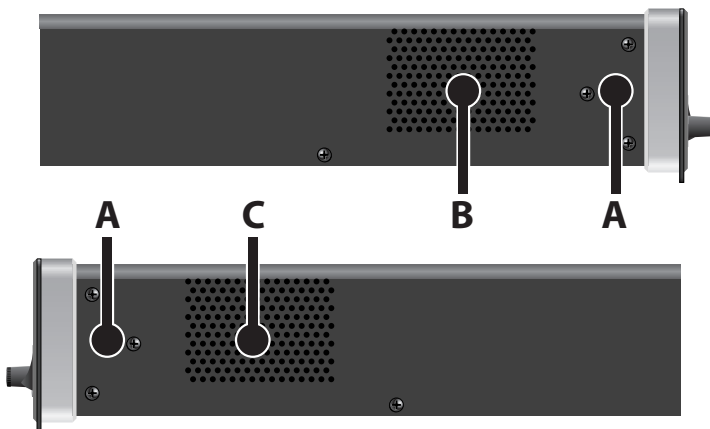


A. ARX Expansion Board Slot

Here you can install an ARX expansion board.

→ "Installing the ARX Expansion Board" (p. 155)

Side Panel



A. Rackmount Brackets

If you want to install the system in a 19" rack, attach the included rackmount brackets.

→ "Attaching the Rackmount Brackets" (p. 163)

B. Cooling Fan Intake Vent

C. Cooling Fan Exhaust Vent

The VS-700R contains a cooling fan that prevents internal overheating. External air is drawn in through the intake vent, then is expelled from the exhaust vent, while carrying along with it the heat that has accumulated inside the unit.

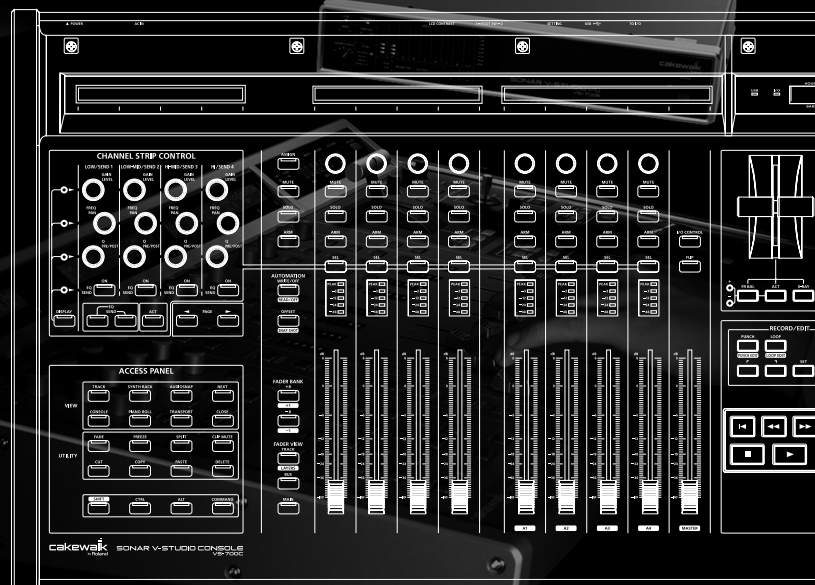
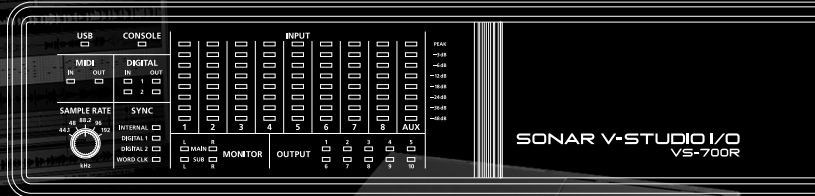
NOTE

Do not block the cooling fan intake vent or exhaust vent. Doing so will cause the internal temperature to rise, possibly causing heat-related malfunctions.

NOTE

If you install the system in a 19" rack, you must leave at least 1 cm of space outside the intake vent and exhaust vent.

Connections



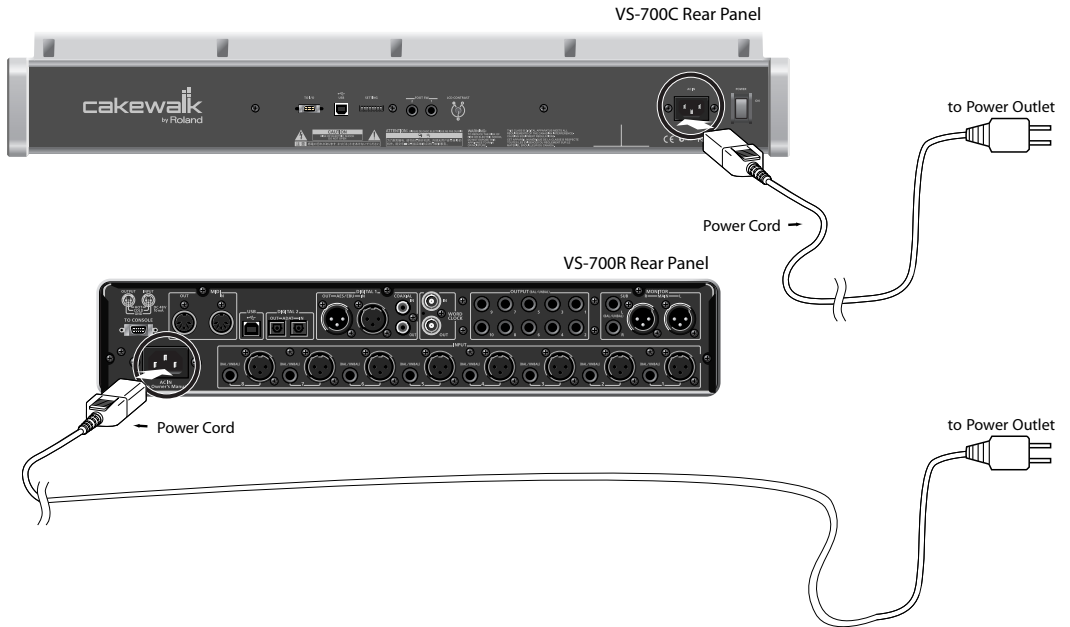
Connections

NOTE

Before connecting the VS-700C and VS-700R to your computer, you must install the VS-700 driver in your computer as described in "Getting Started" (separate document). **The VS-700C and VS-700R will not operate correctly unless the driver is installed in your computer.**

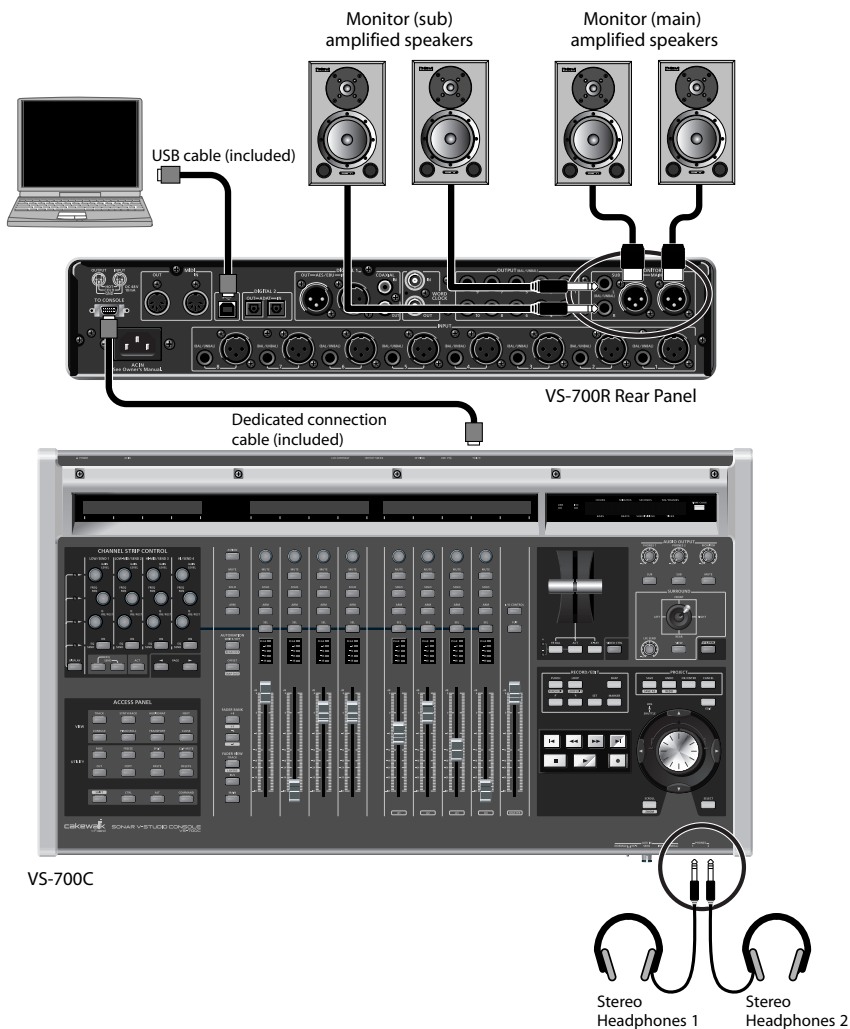
Connecting the Power Cord

- Connect the power cord.



Connecting Your Computer and Sound Reinforcement Equipment

- Use the included dedicated cable to connect the VS-700R and VS-700C.
- Use a USB cable to connect the VS-700R to your computer.
- Connect your headphones, speakers, or other device to the VS-700.
- * This package does not include sound reinforcement equipment such as headphones or speakers.



MEMO

The VS-700 may not be recognized correctly if you're using a USB hub. In this case, connect it directly to a USB port on your computer.

NOTE

To prevent malfunction and/or damage to speakers or other devices, always turn down the volume, and turn off the power on all devices before making any connections.

Turning the Power On

NOTE

Once the connections have been completed (p. 26), turn on power to your various devices in the order specified. By turning on devices in the wrong order, you risk causing malfunction and/or damage to speakers and other devices.

NOTE

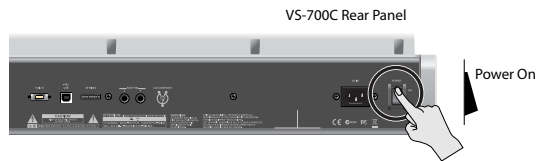
If you need to turn off the power completely, first turn off the POWER switch, then unplug the power cord from the power outlet. Refer to **“Power Supply”** (p. 6).

1. Minimize the VS-700C’s [AUDIO OUTPUT] knobs (three locations).



2. Start up your computer.

3. Turn on the power switch of the VS-700C.



4. Turn on the power switch of the VS-700R.



5. Turn on the power switch of your monitor speakers.

MEMO

Due to a circuitry-protection feature, the VS-700R requires a few moments after power-up before it is ready for normal operation. If the connections are correct, the VS-700R’s USB indicator will light.

If the USB indicator of the VS-700R I/O unit isn’t lit

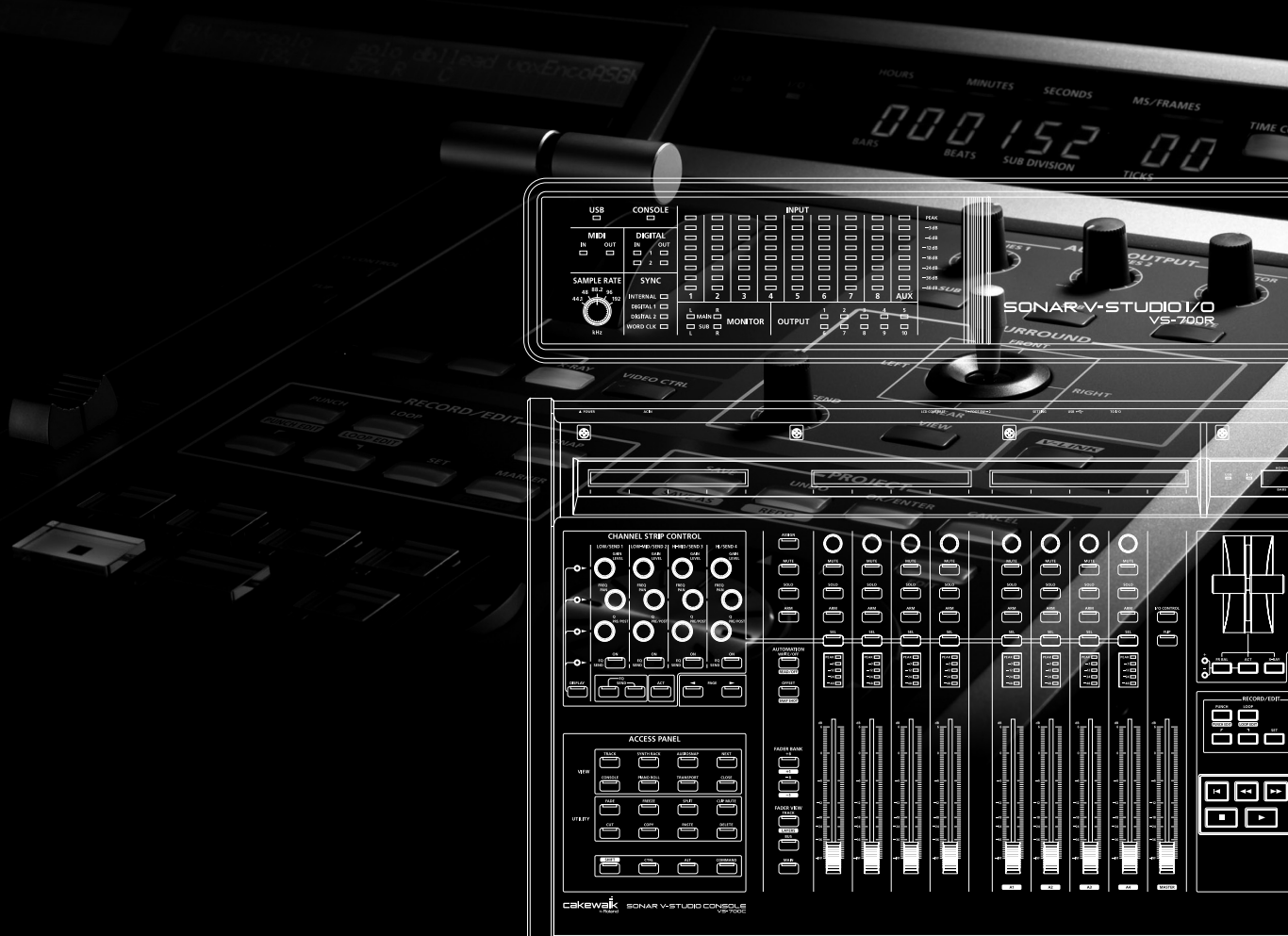
If the USB indicator of the VS-700R isn’t lit, the driver has not been installed correctly. Refer to the “Troubleshooting” chapter in “Getting Started.”

If the I/O indicator of the VS-700C console or the CONSOLE indicator of the VS-700R I/O unit is blinking

Check the following points.

- Are the VS-700C and VS-700R powered up?
- Are the VS-700C and VS-700R correctly connected via the dedicated cable?
- Is the VS-700 R I/O unit connected to your computer via a USB cable, and is the USB indicator of the VS-700R I/O unit lit?

VS-700C Console



CONSOLE

USB IN OUT

MIDI IN OUT

DIGITAL IN 1 OUT 1

DIGITAL IN 2 OUT 2

SAMPLE RATE: 44.1, 48, 96, 192 kHz

SYNC: INTERNAL, DIGITAL 1, DIGITAL 2, WORD CLK

MONITOR: MAIN, SUB

INPUT

1 2 3 4 5 6 7 8

MAX: -20dB, -10dB, 0dB, +10dB, +20dB

AUX: -20dB, -10dB, 0dB, +10dB, +20dB

OUTPUT

1 2 3 4 5 6 7 8

MAX: -20dB, -10dB, 0dB, +10dB, +20dB

SONAR V-STUDIO I/O VS-700C

CHANNEL STRIP CONTROL

LOW SHELF, MID, HIGH SHELF

COMP, GATE, REVERB, DELAY, SEND

ACCESS PANEL

VIEW, PROJECT, RECORD/EDIT, STOP, PLAY, PAUSE

UTILITY: MUTE, SOLO, PAN, ASSIGN

MONITOR: MAIN, SUB

BACK VIEW

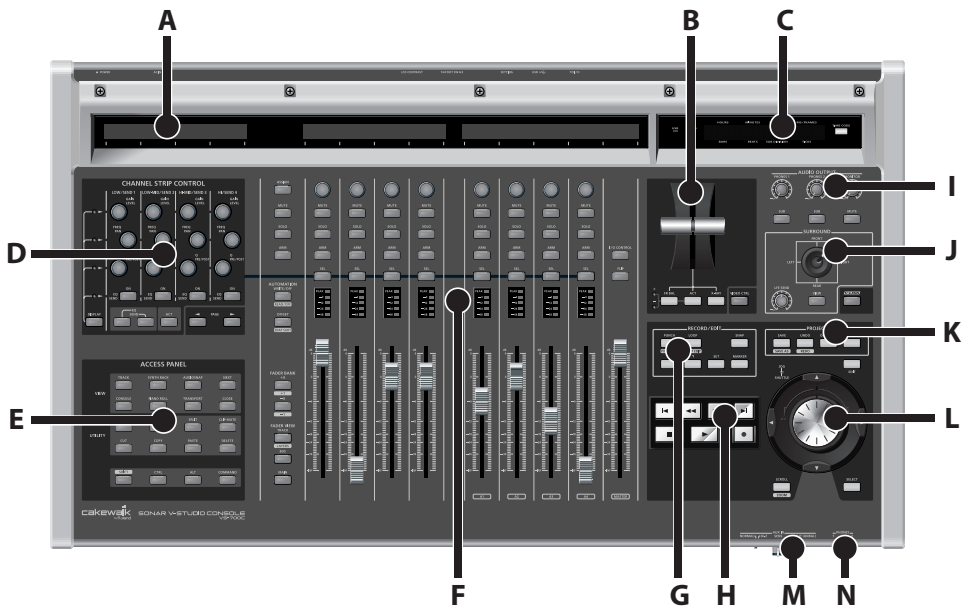
4000000000

SONAR V-STUDIO I/O VS-700C

Overview of the VS-700C Console

The VS-700C Console consist of different sections that are used to control SONAR, including:

- Nine touch sensitive motorized faders
- User definable buttons to map via ACT
- Dedicated section for controlling plug-ins and track/bus parameters
- Jog/Shuttle wheel
- Transport controls
- Surround joystick panner



- A.** LCD display (p. 37, p. 51)
- B.** T-bar (p. 69)
- C.** Time display (p. 48)
- D.** CHANNEL STRIP CONTROL section (p. 49)
- E.** ACCESS PANEL section (p. 64)
- F.** Channel strips (p. 31)
- G.** RECORD/EDIT section (p. 71)
- H.** Transport section (p. 54)
- I.** AUDIO OUTPUT section (p. 70)
- J.** SURROUND section (p. 68)
- K.** PROJECT section (p. 56)
- L.** Jog/Shuttle wheel (p. 57)
- M.** AUX IN Jack (Front Panel) (p. 78)
- N.** PHONES Jack (Front Panel) (p. 70)

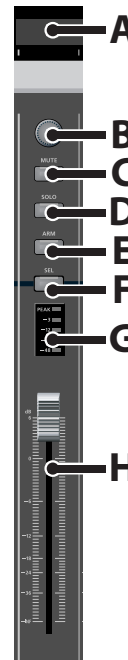
CHANNEL STRIP Section

The Channel Strip section provides eight touch sensitive motorized fader strips with identical controls. You use the channel strips to control up to eight tracks or buses at a time and you can easily switch between different banks of tracks or buses (refer to **“FADER BANK Buttons”** (p. 42)). That is, although there are only eight physical channel strips, you can switch them to control an unlimited number of tracks and buses in your project. The channel strips always show the status of the current set of eight channels.

The Channel Strip section also provides a single motorized Master fader, which is used to control the level of the master bus.

You use the [FADER BANK] and [FADER VIEW] buttons to assign tracks and buses to the channel strips (refer to **“FADER BANK Buttons”** (p. 42) and **“FADER VIEW Buttons (TRACK, BUS, MAIN, I/O CONTROL)”** (p. 43)). The assigned channel strip names are displayed on the LCD displays.

- A. LCD display (p. 37)
- B. Rotary encoder (p. 34)
- C. [MUTE] button (p. 34)
- D. [SOLO] button (p. 35)
- E. [ARM] button (arm for recording) (p. 35)
- F. [SEL] button (Select) (p. 36)
- G. LED level meter (p. 37)
- H. Channel fader (p. 32)



Channel Fader

Use the touch sensitive motorized faders to control levels of audio tracks, MIDI tracks and buses.

When tracks/buses are armed for automation recording, the faders allow you to record automation data by touching/releasing the faders.



For more information about automation recording, refer to “**Rude MUTE/Rude SOLO/Rude ARM Buttons**” (p. 40).

During playback, the motorized faders move in response to existing automation data.



The motorized faders are very quiet, but there may be situations when you want total silence when mixing a soft piece of music or recording with a microphone near the VS-700C Console. To disable the fader motors, press [COMMAND]+[I/O] buttons to open the **VS-700** property page, then click **Disable Fader Movements**.

To Revert a Fader to Its Previous Value

Hold the [COMMAND] modifier button and touch/move a fader.

The top row on the LCD display shows “Revert”. After 1/2 second, the parameter reverts to its previous value and the LCD display reverts to its previous display mode.

FLIP Mode

When FLIP mode is enabled, the functions of the rotary encoders and faders are swapped, allowing you to use the faders for more detailed control of the currently assigned encoder function (refer to “**ASSIGN Button**” (p. 38)).

By default, the fader value is only displayed on the LCD display when you move the fader. To toggle between always showing rotary encoder values or fader values on the LCD display, press [SHIFT]+[FLIP] buttons.



Master Fader

The master fader controls the first available bus in your project, however it can be assigned to control the level of any stereo or surround bus in SONAR.

To Assign a Bus to the Master Fader

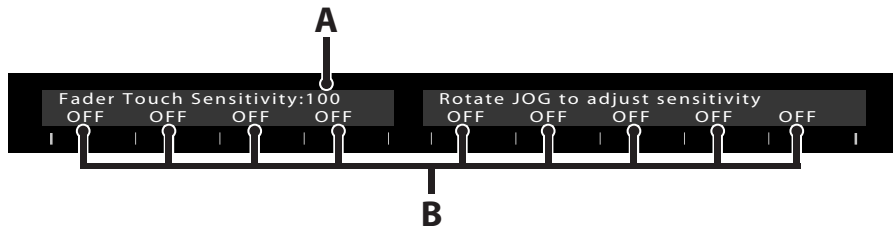
Drag the WAI strip in SONAR to assign a bus to the master fader. For more information about the WAI strip, see the SONAR online Help.

Adjusting the Touch Sensitivity of the Faders

Depending on the conditions in which you use the VS-700, the touch sensitivity of the faders may not work as you expect, or the motor may operate incorrectly when you're operating the fader. If this occurs, adjust the touch sensitivity as follows.

1. **Close SONAR.**
2. **While holding down the [SHIFT] button and [CTRL] button, press the [MUTE] button of the audio output section.**

The current sensitivity setting will be shown in the LCD display, and you'll be in sensitivity adjustment mode.



- A. Fader Touch Sensitivity (0–127)
Higher values will increase the touch sensitivity; lower values will make it less responsive. At a setting of 0, touch sensitivity will be disabled.
 - B. Touch sensitivity monitor
This will indicate “ON” if touch sensitivity activates when you touch the fader, and will return to “OFF” when you remove your finger.
3. **Turn the jog wheel to adjust “Fader Touch Sensitivity” in a range of 0–127.**
Adjust this setting so that the touch sensitivity monitor indication in the LCD display changes from “OFF” to “ON” when you touch each fader. Increase the value if the indication fails to turn “ON” when you touch a fader; decrease the value if the indication turns “ON” when you merely bring your finger near the fader.

MEMO

The “Fader Touch Sensitivity” setting is common to all faders.

4. **When you've finished making settings, hold down the [SHIFT] button and [CTRL] button and press the [MUTE] button of the audio output section.**

You'll exit sensitivity adjustment mode, and return to the previous screen.

Rotary Encoder (Knob)

The rotary encoders work in conjunction with the [ASSIGN] button to allow tactile control over various track, bus and main parameters. All eight rotary encoders always control the same parameter type across different tracks/buses.

The rotary encoders control pan by default, but can be configured to control other channel parameters by pressing the [ASSIGN] button. For details on the [ASSIGN] button, refer to **“ASSIGN Button”** (p. 38).

You can push on the top of the rotary encoder to reset the parameter to its default and/or unity setting (C for pan and 0 dB for gains).

When FLIP mode is enabled, the functions of the rotary encoders and faders are swapped, allowing you to use the faders for more detailed control of the currently assigned encoder function.

To Revert a Rotary Encoder to Its Previous Value

Hold the [COMMAND] modifier button and press/turn a rotary encoder.

The top row on the LCD display shows **“Revert.”** After 1/2 second, the parameter reverts to its previous value and the LCD display reverts to its previous display mode.

Track Mute

Use the [MUTE] button to mute/unmute the assigned track or bus. When the channel is muted, the [MUTE] button is lit.

When one or more channels are muted, the [Rude MUTE] button is lit as a convenient reminder. You can press the [Rude MUTE] button to quickly unmute all channels. For more information about Rude Mute, refer to **“Rude MUTE/ Rude SOLO/Rude ARM Buttons”** (p. 40).

The modifier buttons (p. 67) can be used to extend the functions as follows.

FADER VIEW mode	MUTE	SHIFT + MUTE	ALT+MUTE
TRACK	Mute/unmute	Toggle input monitoring	Automated mute (when Automation Write is enabled)
BUS	Mute/unmute	(Reserved)	(Reserved)
MAIN	Mute/unmute	(Reserved)	(Reserved)

Track Solo (SOLO)

Use the [SOLO] button to solo/unsolo the assigned track or bus. When the channel is soloed, the [SOLO] button is lit. When one or more channels are soloed, the [Rude SOLO] button is lit as a convenient reminder. You can press the [Rude SOLO] button to quickly unsolo all channels. For more information about Rude SOLO, refer to “**Rude MUTE/Rude SOLO/Rude ARM Buttons**” (p. 40).

The modifier buttons (p. 67) can be used to extend the functions as follows.

FADER VIEW mode	SOLO	SHIFT + SOLO
TRACK	Solo/unsolo	Enable/Disable Solo Override
BUS	Solo/unsolo	(Reserved)
MAIN	(Reserved)	(Reserved)

Track Arm (ARM)

Use the [ARM] button to arm the track for recording. When the track is armed for recording, the [ARM] button is lit. When one or more channels are armed for recording, the [Rude ARM] button is lit as a convenient reminder. You can press the [Rude ARM] button to quickly disarm all tracks. For more information about Rude ARM, refer to “**Rude MUTE/Rude SOLO/Rude ARM Buttons**” (p. 40).

The modifier buttons (p. 67) can be used to extend the functions as follows.

FADER VIEW mode	ARM
TRACK	Arm for recording
BUS	(Reserved)
MAIN	(Reserved)

Strip Select (SEL)

Use the [SEL] button to activate the CHANNEL STRIP CONTROL section for the selected channel, which allows you to control EQ and Send parameters for that channel.

The eight [SEL] buttons are mutually exclusive, so only one channel at a time can be selected. When enabled, the [SEL] button stays lit.

The modifier buttons (p. 67) can be used to extend the functions as follows.

NOTE

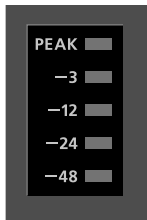
The [SEL] button is not bi-directional. Changing the current track in SONAR will not change the selected channel on the VS-700C Console.

Button	Explanation
Default (no modifier button)	Activates the CHANNEL STRIP CONTROL section for the selected channel. Also sets the current track in SONAR if FADER VIEW is assigned to TRACK.
CTRL+SEL	Enable Plug-in mode. For more information, refer to “Controlling Plug-ins from the VS-700C Console” (p. 74).
SHIFT+SEL	Locks/unlocks the channel strip to the corresponding track/bus in SONAR. (p. 46)
COMMAND+SEL	Toggles a global enable state for locking. If you have strips locked, you can disable and re-enable locking and the same strips will be locked.



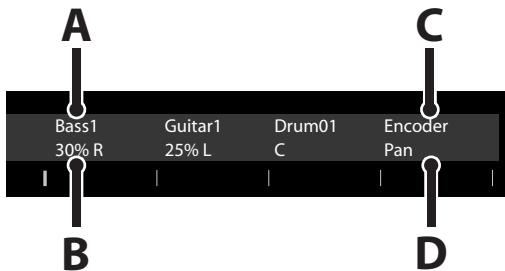
LED Level Meter

The LED level meter displays the channel's current peak volume level. The indicated levels are 0 dB (peak), -3 dB, -12 dB, -24 dB and -48 dB.



LCD Display

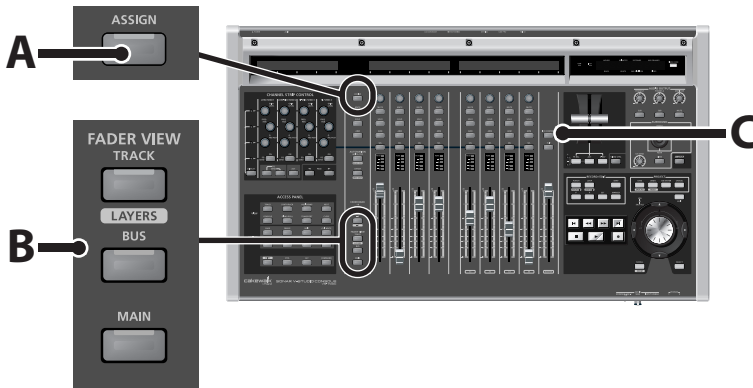
Each channel strip (including the master fader) has a two-line LCD display that displays track information based on which ASSIGN function is selected.



- A. Track/bus/main name
- B. Value of parameter that is assigned to the rotary encoder
- C. Encoder or IO Cntrl (based on *"I/O Control"* (p. 44))
- D. Name of parameter that is assigned to the rotary encoder (Pan, SendVol, In or Out)

ASSIGN Button

Use the [ASSIGN] button to change the parameter that's assigned to the rotary encoders of the channel strips. The available functions vary depending on which [FADER VIEW] button (TRACK, BUS, MAIN or I/O CONTROL) is selected.



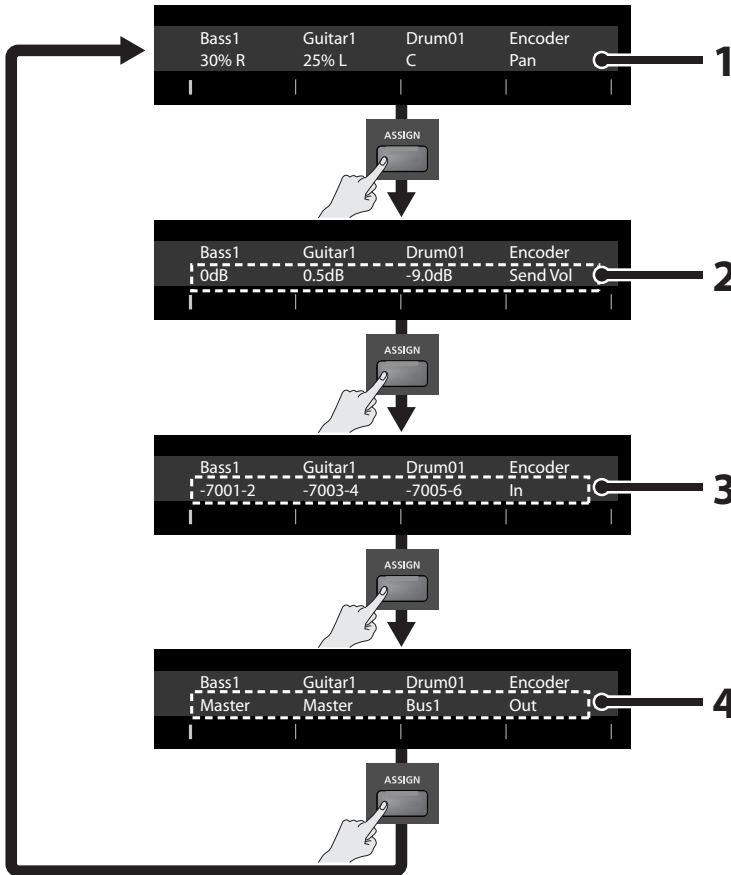
- A. [ASSIGN] button
- B. [FADER VIEW] buttons
- C. [I/O CONTROL] button

The following table shows which parameter types are available for each FADER VIEW.

FADER VIEW	Channel strip type	ASSIGN function1 (default)	ASSIGN function2	ASSIGN function3	ASSIGN function4
TRACK	Audio	Pan	Send 1 Volume	Input	Output
	MIDI	Pan	Chorus Send	MIDI Channel	Output
BUS	Stereo	Pan	Send 1 Volume	Send 1 Pan	Output
	Surround	(Reserved)	Send 1 Volume	(Reserved)	Output
MAIN	Audio	(Reserved)	(Reserved)	(Reserved)	(Reserved)
I/O CONTROL	(audio)	Mic Pre Gain (p. 84)	Threshold (p. 85)	Attack (p. 85)	Release (p. 85)

* When the I/O CONTROL mode, you can switch On/Off of PAD (p. 84) by pressing the rotary encoder.

The illustration below shows how the parameter will be switched if FADER VIEW is set to TRACK.



- 1. Pan (default display)**
- 2. Send Volume/Chorus Send**
- 3. Input**
- 4. Output**

How FLIP Mode Affects the [ASSIGN] Button

When FLIP mode is enabled, the [ASSIGN] button is disabled, regardless of which FADER VIEW type is selected. In FLIP mode, the faders and rotary encoders swap functions.

When [SHIFT]+[FLIP] buttons are pressed, the values of the faders are shown on the LCD display, but the faders and rotary encoders do not swap functions.

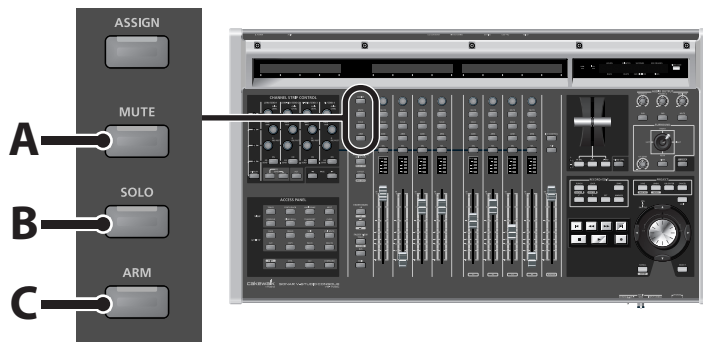
Rude MUTE/Rude SOLO/Rude ARM Buttons

The [Rude MUTE], [Rude SOLO] and [Rude ARM] buttons let you mute or unmute, solo or unsolo, arm or disarm all channels simultaneously.

When one or more channels are muted, soloed or armed for recording, the corresponding [Rude] button is lit as a convenient reminder.

TIP

Since the channel strips only show the status of the current set of eight channels, the [Rude MUTE], [Rude SOLO] and [Rude ARM] buttons serve as a reminder that other non-visible channels might be muted/soloed/armed.



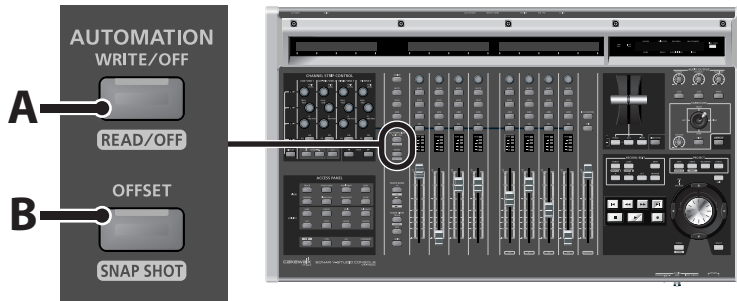
- A. [Rude MUTE] button
- B. [Rude SOLO] button
- C. [Rude ARM] button

The modifier buttons (p. 67) can be used to extend the functions as follows.

Button	Default function	SHIFT+	CTRL+
Rude MUTE	Mute/unmute all tracks	(Reserved)	(Reserved)
Rude SOLO	Solo/unsolo all tracks	Toggle Dim Solo mode	Toggle Exclusive Solo mode
Rude ARM	Arm/disarm all tracks for recording	(Reserved)	(Reserved)

AUTOMATION Buttons

The [AUTOMATION] buttons let you enable/disable automation recording and playback for all channels.



A. [WRITE/OFF] button

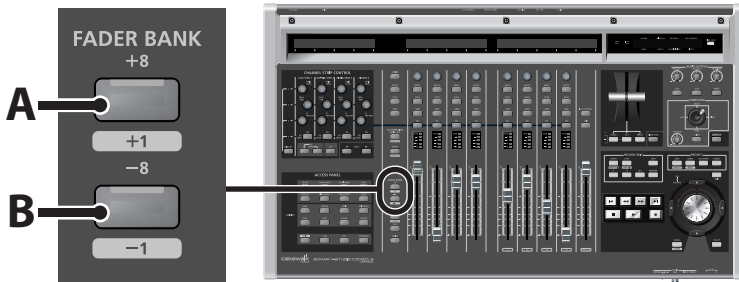
B. [OFFSET] button

The modifier buttons (p. 67) can be used to extend the functions as follows.

Button	Default function	SHIFT+	COMMAND+	SHIFT+ COMMAND+
WRITE/OFF	Enable/disable write automation for selected track/bus	Enable/disable read automation for selected track/bus	Enable/disable write automation for all tracks/buses.	Enable/disable read automation for all tracks/buses.
OFFSET	Enable/disable Offset mode	Take an automation snapshot	(Reserved)	(Reserved)

FADER BANK Buttons

The VS-700C Console has eight physical channel strips that can be used to control up to eight tracks, buses or mains at a time. You use the [FADER BANK] buttons to switch between different banks of tracks/buses/mains, which allows the channel strips to control a different set of tracks/buses/mains.



- A. [+8] button
- B. [-8] button

The modifier buttons (p. 67) can be used to extend the functions as follows.

Button	Default function	SHIFT+
+8	Shift currently viewed channels forward/up in banks of eight	Shift currently viewed channels forward/up in banks of one
-8	Shift currently viewed channels backward/down in banks of eight	Shift currently viewed channels back/down in banks of one

FADER VIEW Buttons (TRACK, BUS, MAIN, I/O CONTROL)

You use the [FADER VIEW] buttons to specify what channel type (tracks, buses or mains) is assigned to the channel strips.



The modifier buttons (p. 67) can be used to extend the functions as follows.

Button	Default function	SHIFT+	COMMAND+
TRACK	Assign the channel strips to tracks	Enable/disable Layer mode	(Reserved)
BUS	Assign the channel strips to buses	(Reserved)	(Reserved)
MAIN	Assign the channel strips to mains	(Reserved)	(Reserved)
I/O CONTROL	Enable control of VS-700R I/O from rotary encoders	(Reserved)	Open the VS-700 property page in SONAR
FLIP	Swap the functions of the rotary encoder and corresponding fader (the [ASSIGN] button is disabled in FLIP mode)	Toggle between displaying encoder or fader values on the LCD display	(Reserved)

I/O Control

When I/O CONTROL mode is enabled, you can use the channel strip rotary encoders to control the Mic Pre Gain, Threshold, Attack and Release parameters on the VS-700R I/O.

Additional I/O parameters can be controlled from the VS-700 property page, plus the stereo digital input mode and digital sync mode.

From the VS-700C console:

1. Press the VS-700C's [I/O CONTROL] button.



2. Press the VS-700C's [ASSIGN] button to assign the desired I/O parameter to the channel strip encoders.

The available parameters are as follows:

- Mic Pre Gain (p. 84)
- Threshold (p. 85)
- Attack (p. 85)
- Release (p. 85)



From the VS-700 property page:

1. Make sure the "VS-700" plug-in has been enabled in SONAR (see "Running SONAR for the First Time" in VS-700 Getting Started).
2. Do one of the following to open the VS-700 property page:

- On SONAR's "Tools" menu, click "VS-700".
- On the "Controllers/Surfaces" toolbar (Views > Toolbars > Controllers/Surfaces),

make sure "VS-700" is selected in the dropdown menu and then click the [Properties] button



- On the VS-700C console, push [COMMAND] + [I/O CONTROL].

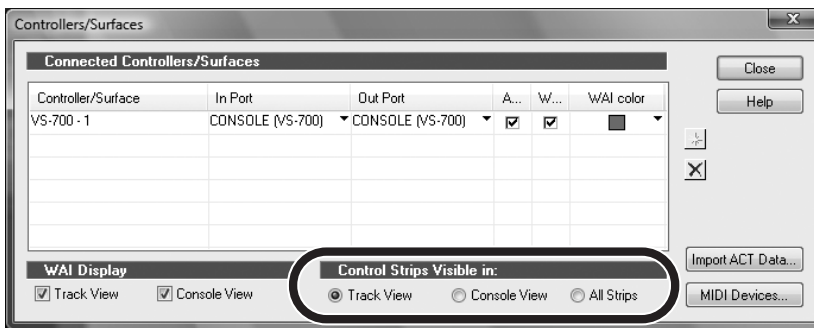
The VS-700 property page appears.

3. Click the "MIC PRE" tab.
4. Adjust the desired parameters.

Specifying the tracks and buses that can be controlled from the VS-700 console

The tracks and buses that can be controlled from the VS-700 console will match the tracks and buses that can be controlled from SONAR's track view or console view. If desired, you can also control all tracks and buses in the project.

1. On SONAR's "Options" menu, click "Controllers/Surfaces" to open the "Controllers/Surfaces" dialog.
2. Under "Control Strips Visible in", select one of the following:



	Explanation
Track View	Control the tracks/buses shown in SONAR's Track view.
Console View	Control the tracks/buses shown in SONAR's Console view.
All Strips	If you want the VS-700C Console to always show all tracks and buses in the project, regardless if any tracks or buses are hidden in SONAR's Track view or Console view.

Once a change is made, the VS-700C Console is updated immediately.

3. Click "Close."

Locking a Channel Strip

Channel strip locking allows you to:

- Control tracks/buses that are not within the same channel bank (range of eight consecutive tracks or buses). For example, you can control tracks 1 through 7 along with track 20.
- Control both tracks and buses simultaneously. For example, channel strips 1 through 4 can control tracks 1 through 4 and channel strips 5 through 8 can control buses 1 through 4.

When you lock a channel strip, the channel strip remains assigned to a particular track or bus in SONAR even if you re-order the track/bus in SONAR, switch banks with the [FADER BANK] buttons or switch views with the [FADER VIEW] buttons.

To Lock/Unlock a Channel Strip

Press [SHIFT]+[SEL] buttons to lock the channel strip.

To unlock the channel strip, press [SHIFT]+[SEL] buttons again.

To temporarily disable all strip locking globally, without losing the lock assignments, press [COMMAND]+[SEL] buttons.

Press [COMMAND]+[SEL] again to re-lock the same channel strips.

When a channel strip is locked:

- An asterisk (*) is displayed at the end of the track or bus name on the LCD display.
- The WAI (Where Am I) display in SONAR shows a rectangle around the locked track or bus (refer to “**Locked Strip WAI Indication**” (p. 47)).

NOTE

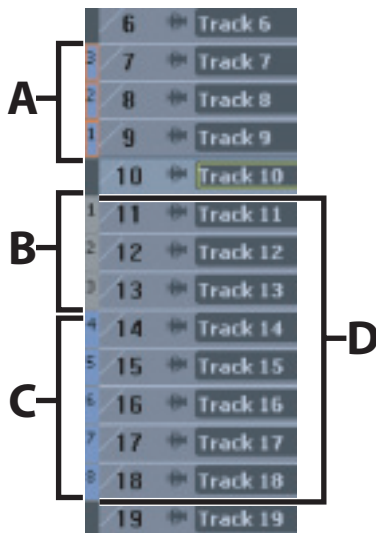
If a track or bus that is locked is deleted from the SONAR project, the physical channel strip will automatically be unlocked.

Locked Strip WAI Indication

SONAR's Track view and Console view show a color-coded WAI (short for Where Am I) display to indicate which tracks and buses are currently being controlled by a control surface.

With strip locking, you can effectively create multiple WAI regions. In the main WAI range (eight consecutive tracks or buses), locked strips are shown grayed out. Individually locked strips are shown with an orange rectangle around them.

In the following figure, channel strips 1,2 and 3 are locked to tracks 9, 8 and 7 respectively. The main WAI range shows the three strips as grayed out.



- A. Locked strips (orange rectangle)
- B. Default assignments for locked strips when unlocked (gray)
- C. Unlocked strips
- D. Main WAI range

For more information about WAI, see the SONAR online help.

Time Display

The VS-700C Console displays the project's current Now time in the top right corner. You can switch the display between SMPTE and Bars|Beats time by pressing the [TIME CODE] button. The default view is Bars|Beats.



A. [TIME CODE] button

CHANNEL STRIP CONTROL Section (EQ, SEND and ACT)

The CHANNEL STRIP CONTROL section lets you control EQ and SEND parameters for the selected channel strip, as well as ACT parameters for the track, bus, effect plug-in or soft synth that has focus in SONAR.

There are 12 rotary encoders and 4 buttons to control EQ, SEND and ACT parameters.



As with all rotary encoders on the VS-700C Console, you can press the top of an encoder to return the parameter to its default setting.

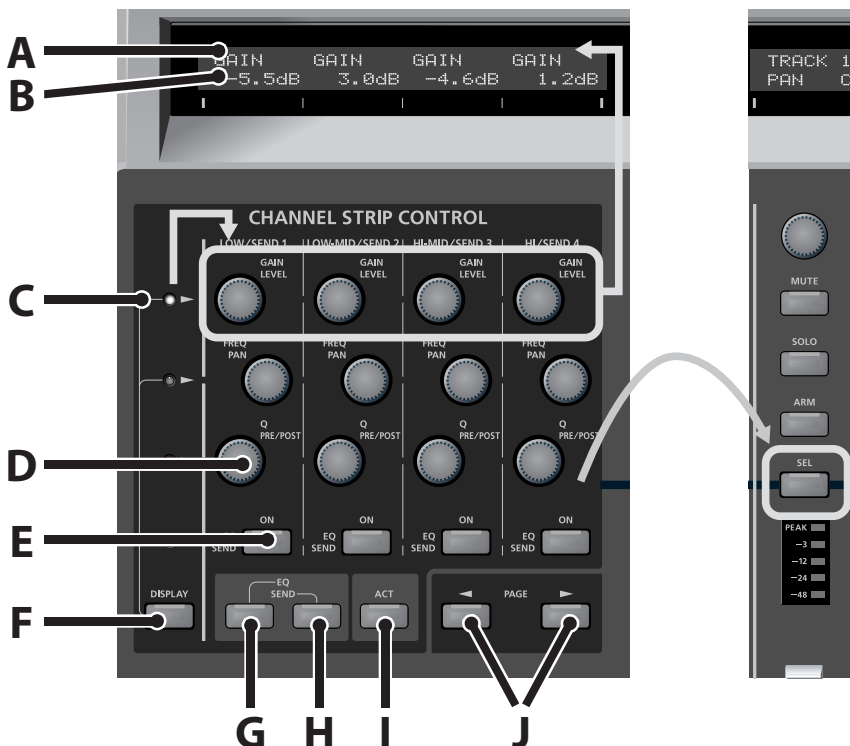
To Specify Which Type of Parameters the Encoders and Buttons are Mapped to

Press the EQ, SEND or ACT button. The EQ, SEND and ACT buttons operate exclusively, so only one button at a time can be selected.

A channel strip must be selected before it can be edited in the CHANNEL STRIP CONTROL section.

To Select a Channel Strip

Press the desired channel strip's [SEL] button. For more information about selecting channel strips, refer to "Strip Select (SEL)" (p. 36).



- A. Parameter name
- B. Parameter value
- C. Selected encoder row
- D. Encoder with push button
- E. Button
- F. Selects which row displays parameters on the LCD Display
- G. View EQ settings
- H. View SEND settings
- I. View ACT settings
- J. PAGE switch (shift the control parameter)

The modifier buttons (p. 67) can be used to extend the functions as follows.

Button	Default function	SHIFT+	CTRL+	COMMAND+	SHIFT+ COMMAND+
DISPLAY	Select which row of controls to show on the LCD display	(Reserved)	(Reserved)	(Reserved)	(Reserved)
EQ	Enable EQ mode for the selected channel strip	(Reserved)	(Reserved)	Open EQ property page for the selected channel strip	(Reserved)
SEND	Enable SEND mode for the selected channel strip	(Reserved)	(Reserved)	(Reserved)	(Reserved)
ACT	Enable ACT mode for the focused view	(Reserved)	Switch ACT context to the first synth in the Synth Rack	Open the property page for the current ACT context	Close the property page for the current ACT context
PAGE LEFT	Page through selected track's EQ, SEND or ACT parameters	(Reserved)	(Reserved)	Step backward through other ACT contexts	(Reserved)
PAGE RIGHT	Page through selected track's EQ, SEND or ACT parameters; there are up to 4 pages of ACT parameters, for a total of 64 parameters	(Reserved)	(Reserved)	Step forward through other ACT contexts	(Reserved)

LCD Display

The LCD display above the CHANNEL STRIP CONTROL section shows EQ, SEND and ACT information for the selected channel strip, depending on which mode is selected.

The CHANNEL STRIP CONTROL section contains four rows of controls; three rows of knobs and one row of buttons. Only one row at a time can be shown on the LCD display.

To specify which row of controls to show on the LCD display:

Press the [DISPLAY] button. The LEDs above the [DISPLAY] button indicate which row of controls is shown on the LCD display.



A. [DISPLAY] button (Selects which row displays parameters on the LCD display)

EQ Mode

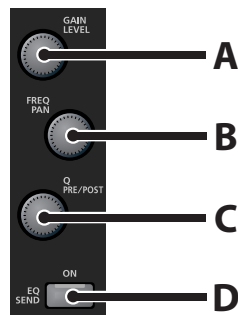
EQ mode lets you control the per-channel EQ for the selected channel strip.

To Enable EQ Mode

Press the [EQ] button. The [EQ] button is lit when enabled.

In EQ mode you can control the four-band EQ. You can control the following parameters for each band.

- A. Band gain
- B. Band frequency
- C. Band shape (Q)
- D. Band enable/disable



SEND Mode

NOTE

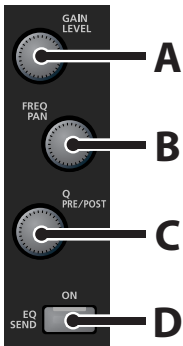
In SEND mode, there are different parameters of control for stereo and surround buses. SEND mode lets you control AUX SEND parameters for the selected channel strip.

To Enable SEND Mode

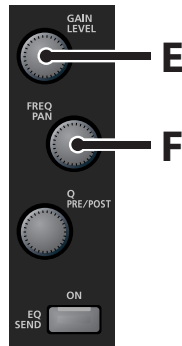
Press the [SEND] button. The [SEND] button is lit when enabled.

You can specify four SEND levels for an audio track. For a MIDI track, you can specify the reverb and chorus sends.

Audio tracks



MIDI tracks



- A. Send level
- B. Send pan/angle
- C. Pre/post toggle (press)
- D. Send enable
- E. Reverb level
- F. Chorus level

ACT Mode

ACT mode lets you control any automatable parameter for the track, bus, effect plug-in or soft synth that has focus.

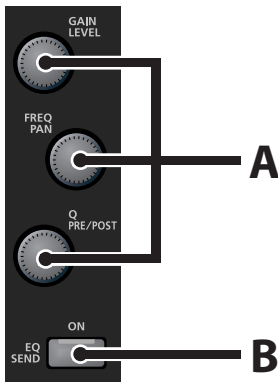
NOTE

Some plug-ins do not support automation and can therefore not be controlled via ACT.

Unlike EQ mode or SEND mode, ACT mode lets you control the plug-in that has focus. The selected channel strip will not be controlled.

To Enable ACT Mode

Press the [ACT] button. The [ACT] button is lit when enabled.



A. Continuous parameters

B. Toggle parameter

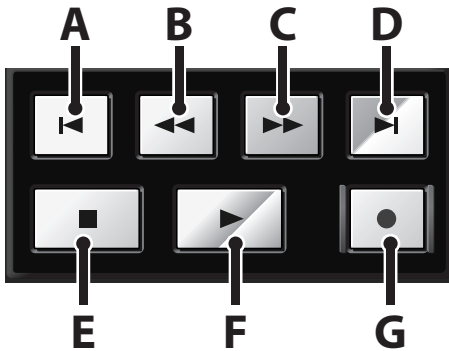
In ACT mode, the modifier buttons (p. 67) can be used to extend the functions (p. 50).

The VS-700C Console can be mapped to up to 65 ACT parameters at a time. By default, the T-bar is assigned to the first usable ACT parameter and the CHANNEL STRIP CONTROL section has 4 pages of 16 parameters.

For more information about ACT, see the SONAR online help.








Transport Section

The transport section provides standard control of RTZ (return to zero), Rewind, Fast Forward, Go to end, Stop, Play and Record.



- A. Return to zero (RTZ)
- B. Rewind
- C. Fast forward
- D. Go to end (GTE)
- E. Stop
- F. Play
- G. Record

The modifier buttons (p. 67) can be used to extend the functions as follows.

Button	Default function	SHIFT+	ALT+
 (RTZ)	Move Now marker to beginning of project; Go to Time 0.	Go to previous marker	(Reserved)
 (Rew)	Move Now marker backward at a consistent rate	(Reserved)	(Reserved)
 (FFwd)	Move Now marker forward at a consistent rate	(Reserved)	(Reserved)
 (GTE)	Move Now marker to end of project	Go to next marker	(Reserved)
 (Stop)	Stop the transport	(Reserved)	(Reserved)
 (Play)	When idle: Start playback During playback: Pause	Audition	Play from Free Edit Cursor
 (Record)	When idle: start playback and enable recording on all armed tracks During playback: enable recording (punch) on armed tracks	(Reserved)	(Reserved)

Starting/Stopping Playback With a Foot Switch

On the back of the VS-700C Console are two foot switch connections. The default functions are as follows:

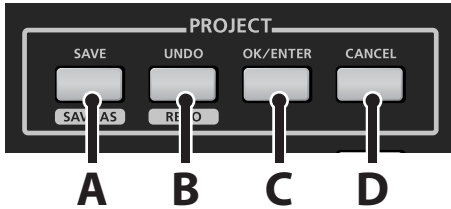
FOOT SW 1.Controls PLAY

FOOT SW 2.Controls RECORD

The functions that are assigned to the foot switches can be configured in the VS-700 property page.

PROJECT Section

The PROJECT sections provides convenient access to frequently used commands that normally require a keyboard or mouse, such as Save, Undo/Redo, OK/ENTER and Cancel.



- A. [SAVE/SAVE AS] button
- B. [UNDO/REDO] button
- C. [OK/ENTER] button
- D. [CANCEL] button

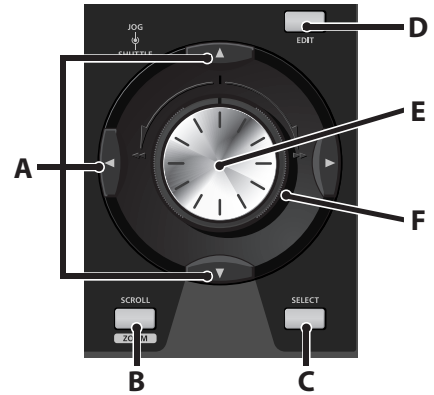
The modifier buttons (p. 67) can be used to extend the functions as follows.

Button	Default function	SHIFT+	COMMAND+
SAVE/SAVE AS	Save the current project	Save As	(Reserved)
UNDO/REDO	Step backwards through the Undo history (Undo)	Step forward through the Undo history (Redo)	Zoom Undo (SHIFT+COMMAND = Zoom Redo)
OK/ENTER	Same function as the ENTER key on a keyboard	(Reserved)	(Reserved)
CANCEL	Same function as the ESC key on a keyboard In EDIT mode, drop the nudged clips.	(Reserved)	(Reserved)

JOG/SHUTTLE/CURSOR Section

The VS-700C Console jog/shuttle is a combo wheel with cursor buttons, which lets you perform edit, zoom, scroll and select operations. The Jog and Shuttle wheels can be turned both clockwise and counterclockwise.

- A. Cursor buttons
- B. [SCROLL/ZOOM] button (blinks in Zoom mode)
- C. [SELECT] button (Select mode)
- D. [EDIT] button (Edit mode)
- E. Jog wheel
- F. Shuttle wheel



By default, the Jog/Shuttle wheel controls the transport, but the control assignments can be changed depending on which Jog/Shuttle mode is enabled. The modes are as follows.

Mode	Explanation
Transport mode (default)	Lets you use the Jog/Shuttle wheel to navigate the Now time in SONAR. For more information, refer to “Transport Mode (Default)” (p. 58).
Scroll mode	Lets you use the Jog/Shuttle wheel to scroll SONAR’s Track view. For more information, refer to “Scroll Mode” (p. 59).
Zoom mode	Lets you use the Jog/Shuttle wheel to zoom SONAR’s Track view. For more information, refer to “Zoom Mode” (p. 60).
Select mode	Lets you use the Jog/Shuttle wheel to select a time region or entire clips. For more information, refer to “Select Mode” (p. 61).
Edit mode	Lets you use the Jog/Shuttle wheel and cursor buttons to nudge the selected data, apply clip fades and crop clip edges. For more information, refer to “Edit Mode” (p. 62).
Scrub Play mode	Lets you control the playback speed with the Jog/Shuttle wheel. For more information, refer to “Scrub Play Mode” (p. 63).

TIP

The following shortcuts apply to all modes:

- [COMMAND]+Jog Wheel momentarily enables horizontal zoom.
- [SHIFT]+[COMMAND]+Jog Wheel momentarily enables Fly Over (horizontal scroll).
- [CTRL]+[COMMAND]+Jog Wheel momentarily enables vertical zoom.
- [CTRL]+[SHIFT]+[COMMAND]+Jog Wheel momentarily enables vertical scroll.

Transport Mode (Default)

Transport mode lets you use the Jog/Shuttle wheel to navigate the Now time.

NOTE

The Jog wheel can navigate by either SMPTE or Bars|Beats time depending on the current Time Display mode (refer to “Time Display” (p. 48)).

To Enable Navigation with the Jog/Shuttle Wheel

The Jog/Shuttle wheel is in Transport mode by default. Transport mode is enabled when the [EDIT], [SCROLL/ZOOM] and [SELECT] buttons are disabled.

The modifier buttons (p. 67) can be used to extend the functions as follows.

Button	Default function	SHIFT+	COMMAND+	CTRL+ COMMAND+	SHIFT+ COMMAND+
Jog	Navigate to the next/previous bar (or second)	Move Now Marker by Beat	Zoom in/out horizontally	Zoom in/out vertically	Fly Over horizontally
Shuttle	Fast forward/ Rewind	(Reserved)	Zoom in/out horizontally	Zoom in/out vertically	Fly Over horizontally
Up cursor	Move cursor up	(Reserved)	Zoom in vertically	Zoom in vertically	(Reserved)
Down cursor	Move cursor down	(Reserved)	(Reserved)	(Reserved)	Zoom out vertically
Left cursor	Move cursor left	TAB left	Zoom out horizontally	(Reserved)	(Reserved)
Right cursor	Move cursor right	TAB right	Zoom in horizontally	(Reserved)	(Reserved)

Scroll Mode

Scroll mode lets you use the Jog/Shuttle wheel to scroll SONAR's Track view and zoom and scroll the Free Edit Cursor.

To Enable Scrolling with the Jog/Shuttle Wheel

Press the [SCROLL/ZOOM] button. The [SCROLL/ZOOM] button is lit when Scroll mode is enabled.

The modifier buttons (p. 67) can be used to extend the functions as follows.

Button	Default function	SHIFT+	CTRL+	SHIFT+CTRL+	SHIFT+COMMAND+
Jog/Shuttle	Scroll Free Edit Cursor horizontally	Temporary switch to Zoom horizontally	Scroll Free Edit Cursor up/down	Zoom vertically	Fly Over horizontally
Up cursor	Scroll Free Edit Cursor up	Zoom Free Edit Cursor in	(Reserved)	(Reserved)	Fly over up vertically
Down cursor	Scroll Free Edit Cursor down	Zoom Free Edit Cursor out	(Reserved)	(Reserved)	Fly over down vertically
Left cursor	Scroll Free Edit Cursor to the left	Zoom Free Edit Cursor out	(Reserved)	(Reserved)	Fly over to left Horizontally
Right cursor	Scroll Free Edit Cursor to the right	Zoom Free Edit Cursor in	(Reserved)	(Reserved)	Fly over to right horizontally

Zoom Mode

Zoom mode lets you use the Jog/Shuttle wheel to zoom SONAR's Track view.

To Enable Zooming with the Jog/Shuttle Wheel

Press [SHIFT]+[SCROLL/ZOOM] buttons. The [SCROLL/ZOOM] button blinks when Zoom mode is enabled.

Zoom Flyover mode

In ZOOM Flyover mode you can scroll and zoom simultaneously to the screen center independent of the Now Time or the Free Edit cursor.

The modifier buttons (p. 67) can be used to extend the functions as follows.

Button	Default function	SHIFT+	CTRL+	SHIFT+COMMAND+
Jog/Shuttle	Zoom in/out horizontally	Scroll horizontally	Zoom in/out vertically	Fly over horizontally
Up cursor	Zoom in vertically	Scroll up	(Reserved)	Fly over up vertically
Down cursor	Zoom out vertically	Scroll down	(Reserved)	Fly over down vertically
Left cursor	Zoom out horizontally	Scroll left	(Reserved)	Fly over to left Horizontally
Right cursor	Zoom in horizontally	Scroll right	(Reserved)	Fly over to right horizontally

You can also control the following zoom functions:

- **Zoom Undo.** Hold down the [COMMAND] modifier button and push the [UNDO] button.
- **Zoom Redo.** Hold down the [SHIFT] and [COMMAND] modifier buttons and push the [UNDO] button.
- **Fit to Project.** Hold down the [COMMAND] modifier button and push the [SET] button.

Select Mode

Select mode lets you use the Jog/Shuttle wheel to select clips or arbitrary sections of time within a clip or across multiple clips. The selection can then be edited in Edit mode.

There are two different selection modes:

Mode	Explanation
Select by Time mode	This mode lets you use the Free Edit Tool to select by time. In this mode, the [SELECT] button is lit.
Select by Clip mode	This mode lets you use the Free Edit Tool to select data by clip. In this mode, the [SELECT] button blinks.

To enable Select by Time mode (default)

Press [SELECT] button. The [SELECT] button will be lit solid to indicate this mode.

To enable Select by Clip mode

Press [SHIFT]+[SELECT] button. The [SELECT] button blinks when select by clip mode is enabled.

In Select mode, the modifier buttons (p. 67) can be used to extend the functions as follows.

Button	Default function	SHIFT+	CTRL+	ALT+
Jog/Shuttle	Move Free Edit Cursor horizontally	Move Free Edit Cursor by clips, selecting whole clip.	Move Free Edit Cursor vertically	Make a time range selection using the Free Edit Cursor
Up/Down cursors	Move Free Edit Cursor vertically	Move Free Edit Cursor vertically by clips, selecting whole clip.	(Reserved)	Make a time range selection using the Free Edit Cursor
Left/Right cursors	Move Free Edit Cursor horizontally	Move Free Edit Cursor horizontally by clips, selecting whole clip.	(Reserved)	Make a time range selection using the Free Edit Cursor
SELECT	Enable Move mode	(Reserved)	Center Free Edit Cursor	Move Free Edit Cursor to Now Time

NOTE

You cannot select discontinuous clips across different tracks. Clip select will not loop the screen when selection reaches the end of the project. Selection will end.

To clear the selection:

Push and hold the [LEFT FLAG] button , then push the [RIGHT FLAG] button .





Edit Mode

Edit mode lets you use the Jog/Shuttle wheel and cursor buttons to nudge the selected data, apply clip fades and crop clip edges.





To Enable Editing with the Jog/Shuttle Wheel

1. **Make a selection (see “To enable Select by Time mode (default)” (p. 61)).**
2. **Press the [EDIT] button.**

To Crop the Selected Clip(s)

1. **Select a clip by using the Free Edit Tool (see “Select Mode” (p. 61)).**
2. **Press the [EDIT] button.**
3. **Do one of the following:**
 - To crop the left clip edge, press the [] button in the RECORD/EDIT section.
 - To crop the right clip edge, press the [] button in the RECORD/EDIT section.The [] or [] button is lit to indicate Crop edit mode.
4. **Turn the Jog or Shuttle wheel.**
5. **When you are finished editing, press the [EDIT] button again to exit Edit mode.**

To Fade the Selected Clip(s)

1. **Select a clip by using the Free Edit Tool (see “Select Mode” (p. 61)).**
2. **Press the [EDIT] button.**
3. **Do one of the following:**
 - To fade the left clip edge, hold down the [SHIFT] modifier button and press the [] button in the RECORD/EDIT section.
 - To fade the right clip edge, hold down the [SHIFT] modifier button and press the [] button in the RECORD/EDIT section.The [] or [] button blinks to indicate Fade edit mode.

4. Turn the Jog or Shuttle wheel.
5. When you are finished editing, press the [EDIT] button again to exit Edit mode.



To Move the Selected Clip(s)

1. Select a clip by using the Free Edit Tool (see “Select Mode” (p. 61)).
2. Press the [EDIT] button.
3. Turn the Jog/Shuttle or press the arrow keys to move the clip to the desired location.
 - Left/right arrows = Nudge 1 resolution.
 - SHIFT+Left/right arrows = Nudge 2 resolution.
 - CTRL+Left/right arrows = Nudge 3 resolution.
4. When you are finished editing, press the [EDIT] button again to exit Edit mode.

Scrub Play Mode

Scrub Play mode lets you control the playback speed with the Jog and Shuttle wheels.

To Enable Scrub Play Mode

Press and hold the  button, then press the  button.

In Scrub Play mode:

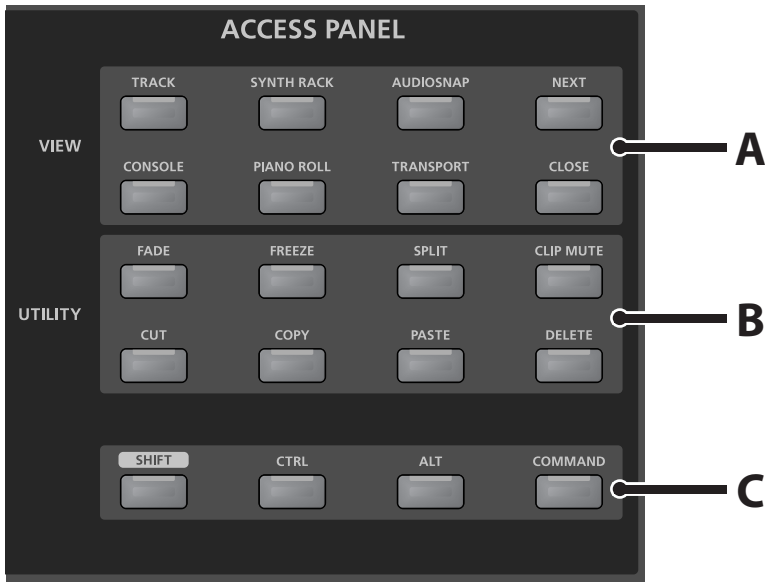
- The  and  buttons blink
- The Jog and Shuttle wheels control the playback speed

To exit Scrub Play mode

Press the  button.

ACCESS PANEL Section (Assignable Buttons)

The ACCESS PANEL section provides 16 assignable buttons that you can configure to control different functions in SONAR. There are also 4 modifier buttons that are used to extend the functionality of other VS-700 hardware controls. The modifier buttons are not assignable.



- A. [VIEW] buttons (assignable)
- B. [UTILITY] buttons (assignable)
- C. Modifier buttons

Each assignable button is named according to their default function. By default, the buttons are assigned as follows.

Button	Default function	CTRL+	CTRL+ALT+	ALT+	COMMAND+
TRACK	Give focus to Track View	Insert Audio track	Insert MIDI track	(Reserved)	(Reserved)
CONSOLE	Open Console view	(Reserved)	(Reserved)	(Reserved)	(Reserved)
SYNTH RACK	Open Synth Rack view and switch ACT context to synths	(Reserved)	(Reserved)	Set ACT context to current synth without opening Synth Rack	Open a synth that corresponds to the selected (SEL) track
PIANO ROLL	Open Piano Roll view	(Reserved)	(Reserved)	(Reserved)	(Reserved)
MARKERS	Open Marker view	(Reserved)	(Reserved)	(Reserved)	(Reserved)
TRANSPORT	Open Large Transport	(Reserved)	(Reserved)	(Reserved)	(Reserved)
NEXT	Give focus to next open window	(Reserved)	(Reserved)	(Reserved)	(Reserved)
CLOSE	Close current window	(Reserved)	(Reserved)	(Reserved)	(Reserved)
FADE	Apply Fade Selected Clips command	(Reserved)	(Reserved)	(Reserved)	(Reserved)
CUT	Cut selected data	(Reserved)	(Reserved)	(Reserved)	(Reserved)
FREEZE	Apply Freeze Track command	(Reserved)	(Reserved)	(Reserved)	(Reserved)
COPY	Copy selected data to clipboard	(Reserved)	(Reserved)	(Reserved)	(Reserved)
SPLIT	Split selection at Now marker	(Reserved)	(Reserved)	(Reserved)	(Reserved)
PASTE	Paste clipboard data at current track and Now Time	(Reserved)	(Reserved)	(Reserved)	(Reserved)
CLIP MUTE	Toggle clip mute on/off for selected clip(s)	(Reserved)	(Reserved)	(Reserved)	(Reserved)
DELETE	Delete selected data	(Reserved)	(Reserved)	(Reserved)	(Reserved)

Mapping Assignable ACCESS PANEL Buttons

To map assignable ACCESS PANEL buttons:

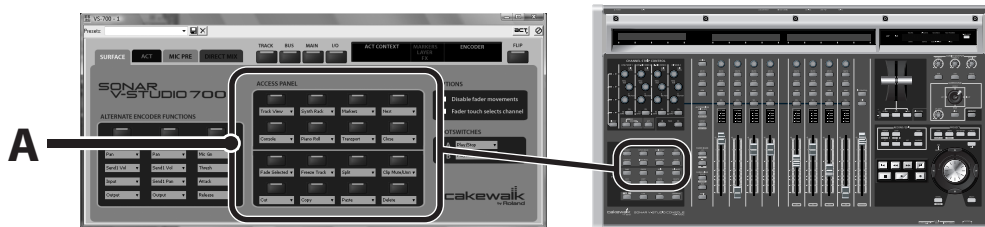
1. Do one of the following to open the VS-700 property page:

- On SONAR's "Tools" menu, click "VS-700."
- On the "Controllers/Surfaces" toolbar (Views > Toolbars > Controllers/Surfaces), make sure "VS-700" is selected in the dropdown menu and then click the "Properties" button .
- On the VS-700C Console, press [COMMAND]+[I/O CONTROL] buttons.

The VS-700 property page appears.

2. Click the "SURFACE" tab.

The 16 assignable buttons are displayed along with their current assignments.



A. ACCESS PANEL button assignments

3. On the "VS-700" property page, click the ACCESS PANEL button that you would like to assign.

The "Button Properties" dialog appears.

4. Do one of the following:

- Click "Host Command" if you want the button to trigger a SONAR command.
- Click "Keystroke" if you want the button to trigger a raw keystroke.

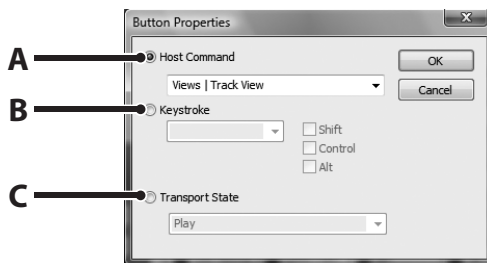
When keystrokes are used, the VS-700C Console substitutes friendly names for the keystrokes where possible. For example, the F1 key is displayed as "Help".

- Click "Transport State" if you want the button to trigger a transport function.

A. Assign to a SONAR command

B. Assign to a keystroke

C. Assign to a transport function



5. Use the dropdown list to select the desired command or keystroke. If you select a keystroke, you can also select one or more optional modifier keys.

6. Click "OK" to close the "Button Properties" dialog.

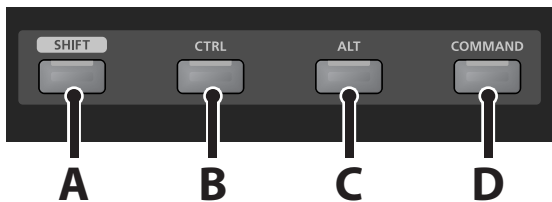
You can now press the (ACCESS PANEL) button to trigger the assigned command or keystroke.

NOTE

Keystrokes will not work with floating windows.

Modifier Buttons

The [SHIFT], [CTRL], [ALT] and [COMMAND] buttons function as modifiers. That is, they extend the functionality of other buttons and knobs. The modifier buttons are not assignable.



A. [SHIFT] button

B. [CTRL] button

C. [ALT] button

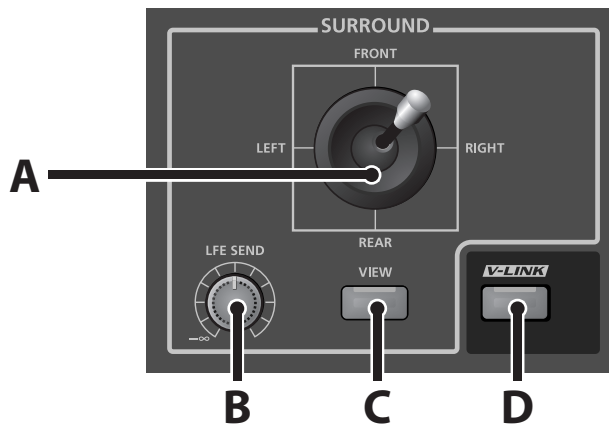
D. [COMMAND] button

TIP

Some buttons (SAVE, UNDO, etc.) have labels above and below the button. The label below the button has a white background with dark text and indicates the button's secondary function when you hold down the [SHIFT] modifier button.

SURROUND Section

The SURROUND section lets you control surround bus parameters on the selected channel strip.



- A.** Surround joystick panner (Angle and Focus)
- B.** [LFE SEND] Level knob (or FR-Balance when [SHIFT] button is pressed)
- C.** [VIEW] button (open surround panner in SONAR)
- D.** [V-LINK] button

The SURROUND section contains the following controls.

Interface	Explanation
Surround joystick panner	Controls the Surround Panner of the selected channel strip. The joystick X-Y position simultaneously controls the Angle and Focus parameters in SONAR. When controlling non-surround channels, the X axis controls pan.
LFE SEND	Adjusts value of LFE Send on the selected channel strip's surround panner. To control FRBalance (Front/Rear), hold down the SHIFT modifier while you adjust the LFE SEND knob.
VIEW	Opens the Surround Panner window in SONAR.
V-LINK	Enables the V-Link protocol. (p. 169)

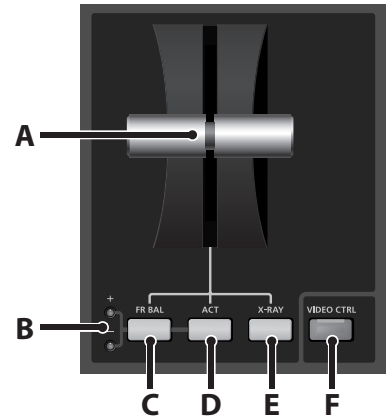
TIP You can also use the T-Bar to control Front/Rear-Balance (refer to **"T-Bar Section"** (p. 69)).

TIP You can move the active window in SONAR by holding down the [COMMAND] modifier button and moving the Surround Panner (move the joystick until it "catches" the window).

T-Bar Section


The T-Bar lets you control the Front-Rear Balance parameter in the surround panner, an ACT parameter or the X-Ray opacity.

- A. T-Bar
- B. LEDs
- C. [FR BAL] button
- D. [ACT] button
- E. [X-RAY] button
- F. [VIDEO CTRL] button



The joystick surround panner can control both Width and Front/Rear Balance simultaneously (refer to “**SURROUND Section**” (p. 68)).

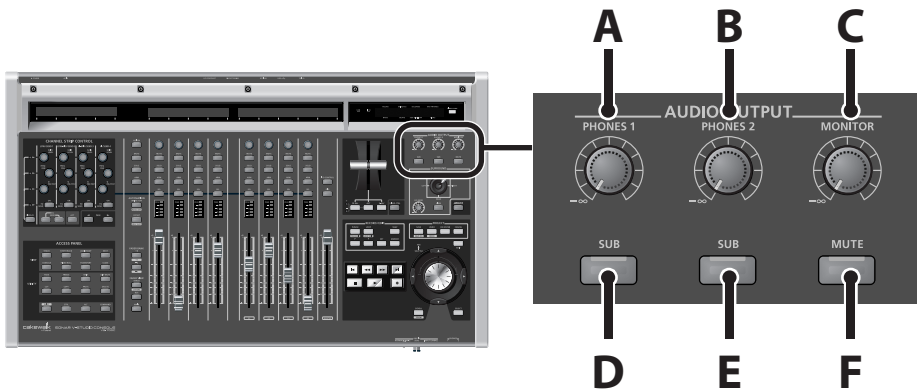
The T-Bar section contains the following controls.

Interface	Explanation
T-Bar	Adjusts the value of the selected T-Bar parameter (FR BAL, ACT or X-RAY).
LED +	In FR BAL mode, indicates if the T-Bar value is above the corresponding Front/Rear Balance value on the selected channel strip.
LED -	In FR BAL mode, indicates if the T-Bar value is below the corresponding Front/Rear Balance value on the selected channel strip.
FR BAL	When working with surround sound, lets you control the balance between the front and rear speakers of the selected channel strip's main surround panner (same as using the surround joystick panner).
ACT	Lets you use the T-Bar as a full-time ACT control, regardless of the current CHANNEL STRIP
CONTROL mode	By default, the T-bar is assigned to the first usable ACT parameter. For more information about ACT, see the SONAR online help.
X-RAY	Lets you use the T-Bar to adjust the global level of transparency of plug-in windows in SONAR.
VIDEO CTRL	<p>You can use the VS-700C console to control a video editing device such as the EDIROL DV-7DL. When you turn on the [VIDEO CTRL] button, you'll be able to use the controllers shown in the illustration below to control your video editing device. For details, refer to “Connecting an EDIROL DV-7DL (Video Control)” (p. 168).</p> 

AUDIO OUTPUT Section

The VS-700R I/O box provides two sets of stereo outputs (main and sub) for monitoring. The VS-700C console also provides two headphone outputs.

The AUDIO OUTPUT section lets you control the volume of the MONITOR output and each headphone output. You can also mute the MONITOR output and assign each headphone to monitor the MAIN/SUB output.





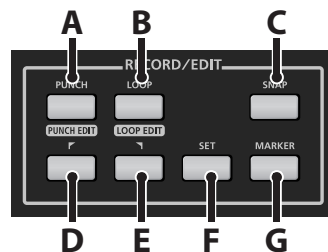
- A. [PHONES 1] knob
- B. [PHONES 2] knob
- C. [MONITOR] knob
- D. [SUB] button (for Phones 1)
- E. [SUB] button (for Phones 2)
- F. [MUTE] button



Interface	Explanation
PHONES 1	Controls the volume of the first headphone output. By default, the MAIN output is sent to the headphones.
PHONES 2	Controls the volume of the second headphone output. By default, the MAIN output is sent to the headphones.
MONITOR	This controls the volume of the monitor outputs (sub and main) on the VS-700R I/O box. It does not affect the volume of the headphone output.
SUB (below PHONES 1)	Sends the SUB stereo output to headphones 1.
SUB (below PHONES 2)	Sends the SUB stereo output to headphones 2.
MUTE	This mutes the monitor outputs (sub and main) of the monitor outputs on the VS-700R I/O box. It does not mute the headphone outputs.

RECORD/EDIT Section




In the RECORD/EDIT Section you can perform punch-recording, looping, select clips or edit regions, and insert/move markers.

- A. Punch
- B. Loop
- C. Snap
- D.  flag (Set IN Point)
- E.  flag (Set OUT Point)
- F. Set
- G. Marker





Button	Default function	SHIFT+	CTRL+	ALT+	COMMAND+
PUNCH	Enable/disable Auto Punch recording (button is lit when enabled)	Enable PUNCH edit mode (button flashes in PUNCH edit mode); use the LEFT FLAG button to set the punch in point and use the RIGHT FLAG button to set the punch out point	(Reserved)	Set punch points to selection in any mode	Open Record Options dialog
LOOP	Enable/disable Loop mode during playback/recording (button is lit when enabled)	Enable LOOP edit mode (button flashes in LOOP edit mode); use the LEFT FLAG button to set the loop start point and use the RIGHT FLAG button to set the loop end point	(Reserved)	Set loop points to selection in any mode	(Reserved)
SET	Sets the Punch or Loop region to match the selected time range	(Reserved)	Select clip under Free Edit Cursor, and maintain previous selection	(Reserved)	Fit to Project
	Go to previous marker. Press and hold LEFT FLAG + RIGHT FLAG to clear the selection.	(Reserved)	(Reserved)	(Reserved)	(Reserved)
	Go to next marker. Press and hold LEFT FLAG + RIGHT FLAG to clear the selection.	(Reserved)	(Reserved)	(Reserved)	(Reserved)
SNAP	Enable/disable Track view Snap to Grid	(Reserved)	(Reserved)	(Reserved)	Open Snap to Grid dialog
MARKER	Insert marker at current Now Time; markers can be dropped during playback and when the transport is stopped	View markers on the LCD display (see Marker mode LCD display)	(Reserved)	(Reserved)	Open Markers View in SONAR

To Specify the Punch Region

1. Select transport mode (p. 58).
2. Hold down the [SHIFT] button and press the [PUNCH] button. The [PUNCH] and [] buttons will blink.
3. Use the jog/shuttle and cursor to move to the punch-in point.
4. Press the [] button. The [PUNCH] and [] buttons will blink.
5. Use the jog/shuttle and cursor to move to the punch-out point.
6. Press the [PUNCH] button.

To Punch-Record

1. Press the [PUNCH] button. The [PUNCH] button will light.
2. Press the [ARM] button for the track that you want to punch-record. The [ARM] button will light red.
3. Press the  button to start recording.
4. When you've finished recording, press the  button to stop recording.

To Loop

1. Press the [LOOP] button. The [LOOP] button will light.

To Specify the Loop Region

1. Select transport mode (p. 58).
2. Hold down the [SHIFT] button and press the [LOOP] button. The [LOOP] and [] buttons will blink.
3. Use the jog/shuttle and cursor to move to the loop-start point.
4. Press the [] button. The [LOOP] and [] buttons will blink.
5. Use the jog/shuttle and cursor to move to the loop-end point.
6. Press the [LOOP] button.

To Insert a Marker

1. Use the jog/shuttle and cursor to move to the time at which you want to insert a marker.
2. Press the [MARKER] button.
3. The marker dialog box will appear.
4. As desired, edit the name, the time, and the groove clip pitch.
5. Press the [OK/ENTER] button.

To Access the Marker View

1. Hold down the [COMMAND] button and press the [MARKER] button.
2. The marker view will appear.

To View Marker Information in the Console

1. Hold down the [SHIFT] button and press the [MARKER] button.
2. Marker information will appear in the console.

Controlling Plug-ins from the VS-700C Console

You can display, insert, delete and bypass track and bus plug-ins, directly from the VS-700C Console. The VS-700C Console must be put in Plug-in mode in order to edit plug-ins.

To Enable Plug-in Mode

Hold down the [CTRL] modifier button and press a channel strip's [SEL] button.

When Plug-in mode is enabled, the names of existing plug-ins on the selected channel strip are displayed across the LCDs. If the selected channel strip doesn't contain any plug-ins (FX bin is empty), "No Plug-ins" appears on the LCD display.

Up to 8 plug-ins are displayed on the upper and lower rows of the LCDs as follows.

LCD row	Channel strips 1-2	Channel strips 3-4	Channel strips 5-6	Channel strips 7-8
Top	Plug-in 1	Plug-in 3	Plug-in 5	Plug-in 7
Bottom	Plug-in 2	Plug-in 4	Plug-in 6	Plug-in 8

Each plug-in name is shown with up to 16 characters, which is the width of two channel strips. For each pair of plug-ins (top and bottom row), the left channel strip corresponds to the top plug-in and the right channel strip corresponds to the bottom plug-in.

To Insert a Plug-in

1. **Make sure Plug-in mode is enabled (refer to "To Enable Plug-in Mode" (p. 74)).**
2. **Press the [ARM] button on the channel strip that corresponds to the position at which you want to insert a new plug-in.**

The [ARM] button flashes to indicate the insert position (plug-in 1–8).

3. **Turn the encoders to find the plug-in that you wish to insert.**

The available plug-ins are presented on the LCD displays in a hierarchical fashion. An Item is either a plugin or a submenu of more plug-ins. If the item is a submenu of more plug-ins, the item has a ">" character appended to the name and the items in the submenu are shown on the next encoder to the right.

4. **Press the encoder button to insert a plug-in.**

The selected plug-in is inserted in the position indicated by the flashing [ARM] button and the LCD displays revert to showing the existing track info on the selected channel strip.



You can undo and redo any inserted plug-in. To undo, press the [UNDO] button. To redo, press [SHIFT]+[UNDO] buttons.

To Delete a Plug-in

1. Make sure Plug-in mode is enabled (refer to “To Enable Plug-in Mode” (p. 74)).
2. Press the [SOLO] button on the channel strip that corresponds to the plug-in you wish to delete.

TIP

You can undo and redo any deleted plug-in. To undo, press the [UNDO] button. To redo, press [SHIFT]+[UNDO] buttons.

To Bypass a Plug-in

1. Make sure Plug-in mode is enabled (refer to “To Enable Plug-in Mode” (p. 74)).
2. Press the [MUTE] button on the channel strip that corresponds to the plug-in you wish to bypass.

NOTE

For each pair of plug-ins (top and bottom row on the LCD displays), the left channel strip corresponds to the top plug-in and the right channel strip corresponds to the bottom plug-in.

To Control Plug-in Parameters

1. In the CHANNEL STRIP CONTROL section, press the [ACT] button to enable ACT mode.
2. As described below, place the focus on the plug-in that you want to control.

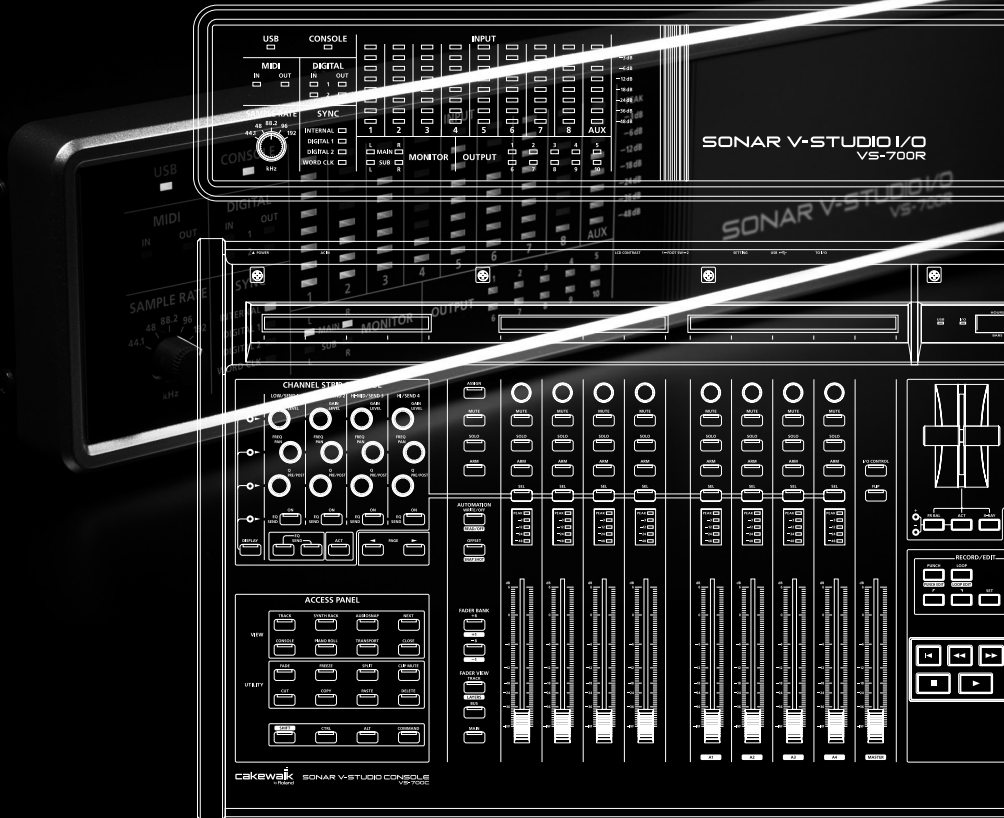
To switch ACT context to the first FX in the selected channel strip's FX bin	Hold down the [SHIFT] modifier button and press the [ACT] button in the CHANNEL STRIP CONTROL section.
To switch ACT context to the first synth in the Synth Rack	Hold down the [CTRL] modifier button and press the [ACT] button in the CHANNEL STRIP CONTROL section.
To navigate to other ACT contexts	Hold down the [COMMAND] modifier button and press the [PAGE LEFT] or [PAGE RIGHT] button.

3. Use the rotary encoders and buttons in the CHANNEL STRIP CONTROL section to control the desired parameter(s).

NOTE

You can also use the T-bar to control a single ACT parameter. For more information about using the T-bar, refer to “T-Bar Section” (p. 69).

VS-700R I/O




Connecting Recording Equipment

Connections to the Analog Jacks

Connecting a Mic

VS-700R Rear Panel

The VS-700R provides a balanced (XLR) type connector that is wired as shown in the illustration. Check the wiring of your device before connecting it.

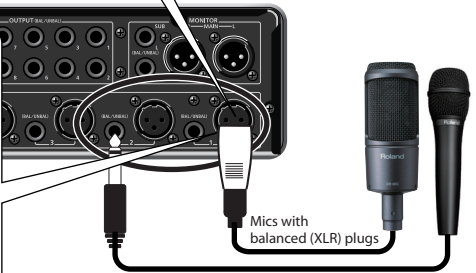


The eight audio inputs (INPUT 1–8) contain phantom power supplies. From SONAR's "Tools" menu, open "VS-700" and select the "MIC PRE" tab, and click [+48] button to make settings. When the system is powered up, the phantom power will be turned off. When you load a project in SONAR, the state that is saved in the project will be reflected.

When using a condenser mic that requires a balanced (XLR) connection that supplies phantom power, set [+48] button ON (PHANTOM ON).

When using a dynamic mic etc. that has a phone plug, set [+48] button OFF (PHANTOM OFF).

You must leave the phantom power turned off unless you've connected a condenser mic that requires a phantom power supply. Supplying phantom power to a dynamic mic or audio playback device will cause malfunctions. For details on the specifications of your mic, refer to the owner's manual for your mic.

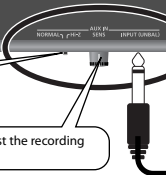
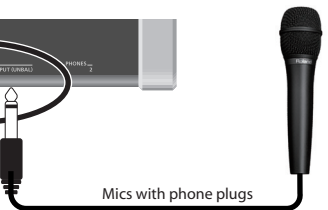


VS-700C Front Panel

For a mic, select the "NORMAL" setting.



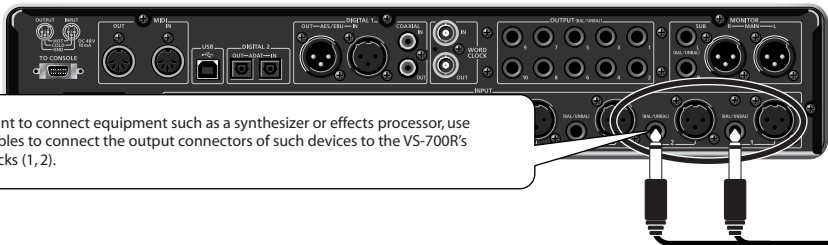
Use this to adjust the recording level.

Connecting Synthesizers or Audio Equipment

VS-700R Rear Panel

If you want to connect equipment such as a synthesizer or effects processor, use audio cables to connect the output connectors of such devices to the VS-700R's INPUT jacks (1, 2).



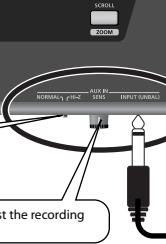
Connecting a Guitar or Bass

If you want to connect a guitar or bass directly, connect it to the AUX IN jack located on the front panel of the VS-700C console.

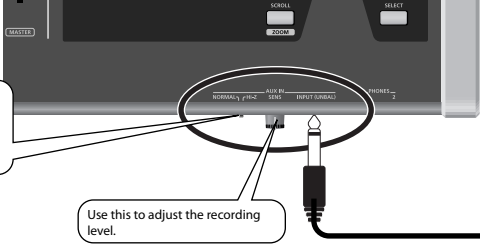
For a guitar or bass, select the "Hi-Z" setting.



Use this to adjust the recording level.



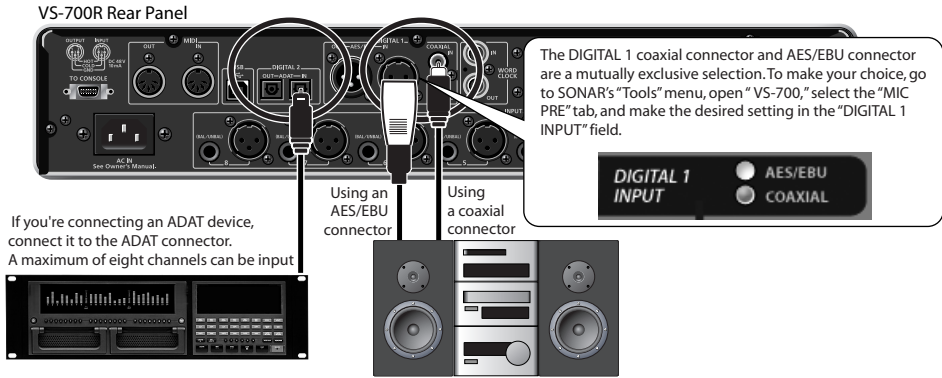
VS-700C Front Panel



Connections to the Digital Connectors

Connecting a Digital Audio Source

If you want to digitally connect a DAT or similar device, connect its output connector (e.g., DIGITAL OUT connector) to the VS-700R's DIGITAL IN connector.



NOTE

When connection cables with resistors are used, the volume level of equipment connected to the inputs (INPUT 1–8 jacks, AUX IN Jack) may be low. If this happens, use connection cables that do not contain resistors.

Switching the Sampling Rate

Use the front panel [SAMPLE RATE] knob to select the sampling rate. To make the system reflect the new setting, you'll need to cycle the power to the system. If you need to synchronize the VS-700 to another digital device, you must first set this knob to the same sampling rate as the master device.

1. **Close the software you're using.**
2. **Switch off the power to the VS-700R I/O and the VS-700C console.**
3. **Set the VS-700R I/O's [SAMPLE RATE] knob to the desired sampling rate.**
4. **Power up the VS-700C console.**
5. **Power up the VS-700R I/O.**
6. **Wait for the USB indicator to light.**
7. **Switch the sampling rate in your software.**

cf. 

"Setting SONAR's Sampling Rate" (p. 81)

The number of channels that can be used will depend on the sampling rate.

	44.1/48 kHz	88.2/96 kHz	192 kHz
Input 1-8	8	8	4
Digital 1 In	2	2	0
Digital 2 In	8	4	0
AUX	1	1	1
Total input channels	19	15	5
Main Out	2	2	2
Sub Out	2	2	2
Output 1-10	10	10	6
Digital 1 Out	2	2	0
Digital 2 Out	8	4	0
Total output channels	24	20	10

Setting SONAR's Sampling Rate

* In SONAR, you cannot change the sampling rate of a project that contains audio data.

- 1. Start up SONAR.**
- 2. If an "Audio Driver Error" is displayed during startup, click [Use Anyway].**
- 3. Choose "Options|Audio" to display the "Audio Options" dialog box.**
- 4. On the "General" tab of the dialog, select a value in the Sampling Rate dropdown menu, and a value from the Audio Driver Bit Depth dropdown menu.**
- 5. Click [OK] to close the "Audio Options" dialog box.**

If you are asked to restart SONAR, follow the on-screen instructions. After you've changed the sampling rate, we recommend that you execute "Wave Profiler..." located in the same dialog box.

- 6. Restart SONAR.**

The newly selected sampling rate will be in effect.

MEMO

Selecting a high sampling rate will allow you to handle audio at a higher quality, but this will require a greater level of performance from your CPU, memory, and hard disk. If you are unsure about the performance of your computer, we recommend that you use 44,100 Hz or 48,000 Hz.

MEMO

The sampling rate setting is also reflected in new project files that you subsequently create.

Audio Clock Source

You can choose one of four types of clock source. The current clock source is shown by the front panel SYNC indicator.

In the case of an external source, the indicator will light if synchronization is locked. The indicator will blink if synchronization is not locked

If you're using SONAR, you can select the clock source parameters as described below.

MEMO

If you're using software other than SONAR, use "VS-700R I/O Editor" which is included on the "SONAR V-STUDIO 700 CD-ROM."

1. From SONAR's "Tools" menu, open "VS-700."
2. Select the "MIC PRE" tab.
3. Click the "SYNC" check box to select the clock source.



MEMO

These settings are not stored in the VS-700.

Setting	Screen label	Explanation
Internal clock	INTERNAL	The internal clock will be used as the master clock.
Digital 1	DIGITAL 1	Synchronized to the clock of the digital audio signal being input to Digital 1.
Digital 2 (ADAT)	DIGITAL 2	Synchronized to the clock of the digital audio signal being input to Digital 2.
Word clock	WORDCLK	Synchronized to the word clock signal being input to the word clock input connector.

Phantom Power


Phantom power is supplied to the XLR connectors of the eight audio inputs. It can be turned on/off individually for each channel.

When the system is powered up, phantom power will be off. Subsequently, when you load a project in SONAR, the settings saved in the project will be applied.

If you're using SONAR, you can turn phantom power on/off as described below.

MEMO

If you're using software other than SONAR, use "VS-700R I/O Editor" which is included on the "SONAR V-STUDIO 700 CD-ROM."

1. From SONAR's "Tools" menu, open "VS-700."
2. Select the "MIC PRE" tab.
3. Click  [+48] button to turn phantom power on/off.



MEMO

These settings are not stored in the VS-700.

Preamp Parameters

Preamps are built into the eight audio inputs (INPUT 1–8).

If you're using SONAR, you can edit the preamp parameters as described below.

MEMO






If you're using software other than SONAR, use "VS-700R I/O Editor" which is included on the "SONAR V-STUDIO 700 CD-ROM."

1. From SONAR's "Tools" menu, open "VS-700."
2. Select the "MIC PRE" tab.
3. Apply the desired preamp settings.



MEMO

These settings are not stored in the VS-700.

Setting	Screen label	Range	Default	Explanation
Low cut		OFF, ON	OFF	Enables the low cut filter for the input. The cutoff frequency is 100 Hz.
Phase		Normal (normal phase), Invert (reverse phase)	Normal	Inverts the polarity of the input signal.
PAD		OFF, ON	ON	Attenuates the input signal by 20 dB.
Input gain		0–+44 dB	0	Adjusts the gain of the input signal in a range of 0–44 dB. The adjustment is in 1 dB steps.
Stereo link		OFF, ON	OFF	If this setting is on, the preamp and compressor settings of the adjacent even-numbered channel will be the same as this channel.

cf.

You can use the channel strip rotary encoders to control the Mic Pre Gain, Threshold, Attack and Release parameters on the VS-700R I/O. For details, refer to "I/O Control" (p. 44).

Compressor Parameters

Digital compressors are built into the eight audio inputs (INPUT 1–8).

If you're using SONAR, you can edit the compressor parameters as described below.

MEMO

If you're using software other than SONAR, use "VS-700R I/O Editor" which is included on the "SONAR V-STUDIO 700 CD-ROM."

1. From SONAR's "Tools" menu, open "VS-700."
2. Select the "MIC PRE" tab.
3. Apply the desired compressor settings.



MEMO

These settings are not stored in the VS-700.

Setting	Screen label	Range	Default	Explanation
Comp switch	COMP	OFF, ON	OFF	Enables the compressor.
Threshold	THRES	-60–0 dB	-20 dB	Specifies the signal level at which the compressor will be applied.
Ratio	RATIO	1:1.0, 1:1.1, 1:1.2, 1:1.4, 1:1.6, 1:1.8, 1:2.0, 1:2.5, 1:3.2, 1:4.0, 1:5.6, 1:8.0, 1:16, 1:INF	1:4.0	Specifies the compression ratio by which the audio signal will be compressed.
Attack time	ATK	0–100		Actual value (0.2–100 ms)
Release time	REL	0–100		Actual value (10–500 ms)
Gain	GAIN	-30–30 dB	0 dB	Adjusts the output level of the compressor.

cf.

You can use the channel strip rotary encoders to control the Mic Pre Gain, Threshold, Attack and Release parameters on the VS-700R I/O. For details, refer to "I/O Control" (p. 44).

Direct Monitor Mixer

By using the Direct Monitor Mixer, input signals and signals from the internal sound generator can be output directly to the monitor without being routed through the computer. The Direct Monitor Mixer is a stereo mixer that lets you adjust parameters such as volume and pan for each input and audio source. As the output destination of the mixer, you can select Main, Sub, or Digital 1 Out as desired. (You can also select more than one of these simultaneously.)

If you're using SONAR, you can edit the Direct Monitor Mixer parameters as described below.

MEMO

If you're using software other than SONAR, use "VS-700R I/O Editor" which is included on the "SONAR V-STUDIO 700 CD-ROM."

1. From SONAR's "Tools" menu, open "VS-700."
2. Select the "DIRECT MIX" tab.
3. Apply the desired Direct Monitor Mixer settings.



MEMO

These settings are not stored in the VS-700.

Input Settings

Setting	Screen label	State	Explanation
Mono	MONO	Stereo, Mono	The adjacent stereo pair will be mixed to a monaural signal. If the input signal is a single channel (monaural), use the MONO setting.
Solo	SOLO	OFF, ON	Solo within the monitor mix.
Mute	MUTE	OFF, ON	Mute within the monitor mix.
Pan	PAN	L (100%)–R (100%)	Adjust the pan within the monitor mix.
Volume	VOLUME	–∞–+6 dB	Monitor volume.

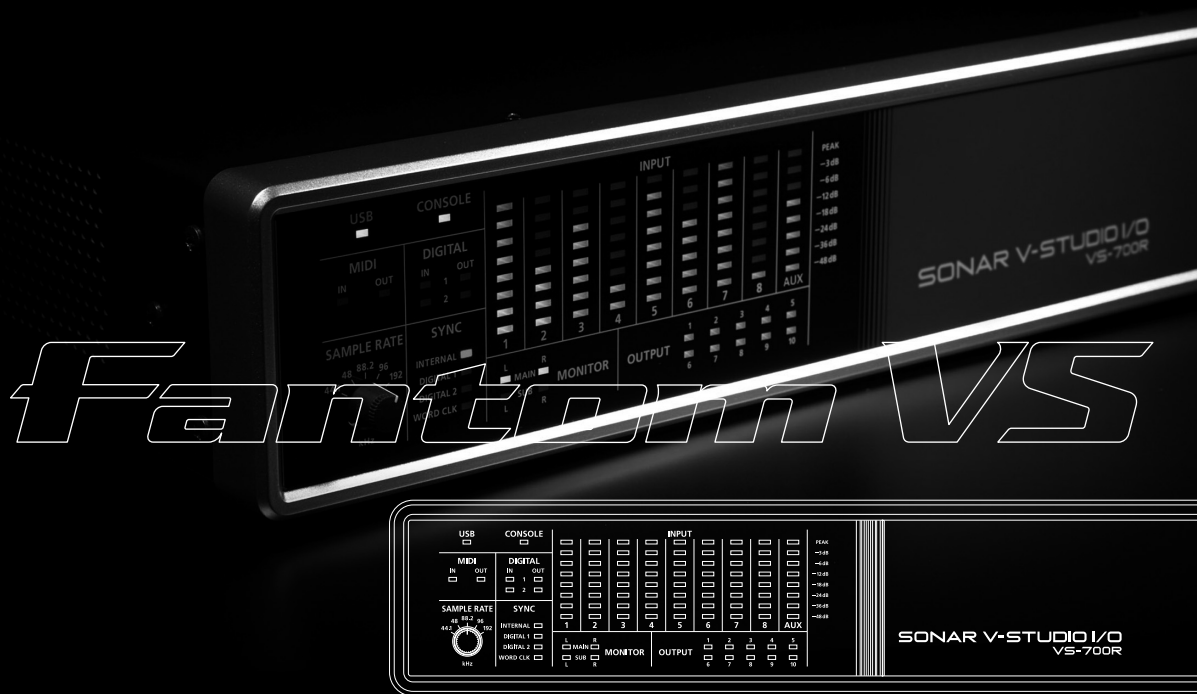
Output Destination Settings

The output of the monitor mixer can be mixed to the following three audio outputs.

You can select multiple output destinations simultaneously, but the same signal will be output. If you're monitoring through headphones, select Main or Sub.

Setting	Screen label	State	Explanation
Main output	MAIN	OFF, ON	Main output
Sub output	SUB	OFF, ON	Sub output
Digital output 1	DIGITAL 1	OFF, ON	Digital output 1

Fantom VS (Synthesizer)




Inserting the Fantom VS Plug-In

The Fantom VS Editor is a VSTi soft synth that is inserted just like any other plugin soft synth.

1. Start SONAR.

2. Start a new project or open an existing project (see the SONAR online Help for details).

3. Do one of the following to insert the Fantom VS Editor soft synth:

- On the **“Insert”** menu, point to **“Soft Synths”** and select **“Fantom VS”**.
- In the Synth Rack view, click the **[Insert Soft Synth and ReWire devices]** button  and select **“Fantom VS”** from the popup menu.


The **“Insert Soft Synth Options”** dialog appears.

4. Select the “Simple Instrument Track” check box, then click [OK] to close the “Insert Soft Synth Options” dialog.

A new instrument track is inserted and the Fantom VS Editor appears.

NOTE

If the Fantom VS Editor does not appear, do one of the following:

- In the Synth Rack view, double-click the FantomVS Editor VST synth icon.
- In the Track view, double-click the miniature track icon  (to the left of the track name).

5. If a message indicates “MIDI devices aren’t set up correctly”, click [OK].

6. In Fantom VS Editor, click the [Setup] menu button  and select “Set Up MIDI Devices” to open the Set Up MIDI Devices dialog.

7. In the “Fantom VS Editor Input/Output” lists, choose “Fantom VS” and click [OK].

Fantom VS Editor (Selecting a Sound)

In order to edit a patch, you must first select the patch you wish to edit.

1. In the upper part of Fantom VS Editor's main window, click the desired part number (1-16).



2. In the upper part of Fantom VS Editor's main window, click the Patch list and choose the desired patch from the menu that appears.



For more details, refer to the Fantom VS Editor online Help.

Fantom VS Editor (Editing a Sound)

Consider the following tips before editing patches:

- **Select a patch that is similar to the sound you wish to create.** It's hard to create a new sound that's exactly what you want if you just select a patch and modify its parameters at random. It makes sense to start with a patch whose sound is related to what you have in mind.
- **Decide which tones will sound.** When creating a patch, it is important to decide which tones you are going to use. Set Tone Switch 1 through 4 to specify whether each tone will sound (on), or not (off). It is also important to turn off unused tones to avoid wasting voices, unnecessarily reducing the number of simultaneous notes you can play.
- **Check the Structure setting.** The important Structure parameter determines how the four tones combine. Before you select new tones, make sure you understand how the currently selected tones are affecting each other.
- **Turn Effects off.** Since the Fantom VS effects have such a profound impact on its sounds, turn them off to listen to the sound itself so you can better evaluate the changes you're making. Since you will hear the original sound of the patch itself when the effects are turned off, the results of your modifications will be easier to hear. Actually, sometimes just changing effects settings can give you the sound you want.

To select a parameter type

From the Navigation block, select the page that contains the parameters you wish to edit.



Navigation block

Main block

To edit parameter values

You can edit values by clicking (and dragging) the buttons, sliders, or knobs.

If you feel that the sliders and knobs in the panel are too small, and find it difficult to make detailed settings, try clicking (and holding) a knob or slider and then dragging the mouse farther away. This lets you set the value at any position as long as you continue holding down the mouse button. When doing so, you will be able to make precise adjustments to the value whenever the mouse cursor is away from the center of the knob or slider.

When a value is displayed, you can also press the cursor keys (up/down) to modify it.

To initialize a parameter value

You can initialize the value of a parameter by holding down the CTRL key on your computer keyboard and clicking the slider or knob of that parameter.



For more details, refer to the Fantom VS Editor online Help.

Overview of the Fantom VS

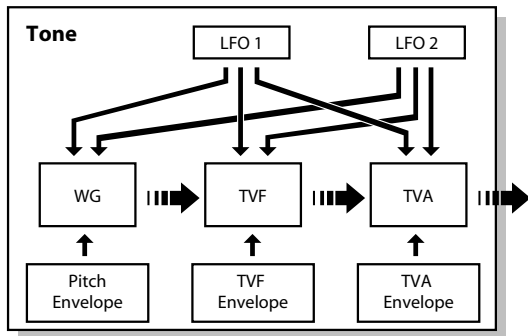
How the Fantom VS is Organized

Classification of Fantom VS Sound Types

When using the Fantom VS, you will notice that a variety of different categories come into play when working with sounds. What follows is a simple explanation of each sound category.

Tones

On the Fantom VS, the tones are the smallest unit of sound. However, it is not possible to play a tone by itself. The patch is the unit of sound which can be played, and the tones are the basic building blocks which make up the patch.



Tones consist of the following five components.

WG (Wave Generator)

Specifies the PCM waveform (wave) that is the basis of the sound, and determines how the pitch of the sound will change.

The Fantom VS has 1,240 different waveforms. All patches built into the Fantom VS consist of combinations of tones which are created based on these waveforms.

NOTE

There are four wave generators for each rhythm tone (percussion instrument sounds).

TVF (Time Variant Filter)

Specifies how the frequency components of the sound will change.

TVA (Time Variant Amplifier)

Specifies the volume changes and the sound's position in a stereo soundfield.

Envelope

You use Envelope to initiate changes to occur to a sound over time. There are separate envelopes for Pitch, TVF (filter), and TVA (volume). For example if you wish to modify the way in which the sound attacks or decays over time, you would adjust the TVA envelope.

LFO (Low Frequency Oscillator)

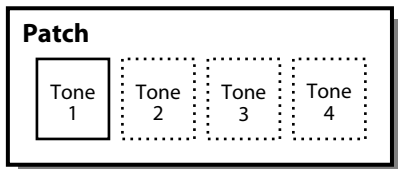
Use the LFO to create cyclic changes (modulation) in a sound. The Fantom VS has two LFOs. Either one or both can be applied to affect the WG (pitch), TVF (filter) and/or TVA (volume). When an LFO is applied to the WG pitch, a vibrato effect is produced. When an LFO is applied to the TVF cutoff frequency, a wah effect is produced. When an LFO is applied to the TVA volume, a tremolo effect is produced.

NOTE

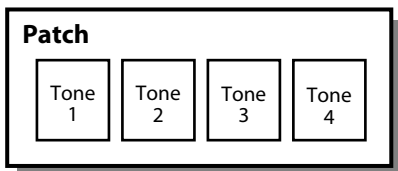
LFO is not included in the rhythm tones (percussion instrument sounds).

Patches

Patches are the basic sound configurations that you play during a performance. Each patch can be configured by combining up to four tones. How the four tones are combined is determined by the Structure Type parameter (p. 101).



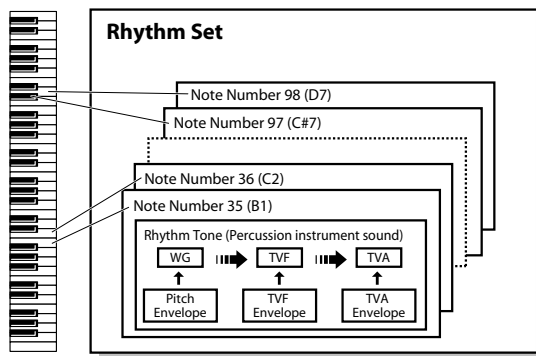
Example 1: A Patch consisting of only one Tone (Tones 2–4 are turned off).



Example 2: A Patch consisting of four Tones.

Rhythm Sets

Rhythm sets are groups of a number of different percussion instrument sounds. Since percussion instruments generally do not play melodies, there is no need for a percussion instrument sound to be able to play a scale on the keyboard. It is, however, more important that as many percussion instruments as possible be available to you at the same time. Therefore, each key (note number) of a rhythm set will produce a different percussion instrument.



Each percussion instrument consists of the following four elements. (For details, refer to the explanations for "Tones.")

WG (Wave Generator)

TVF (Time Variant Filter)

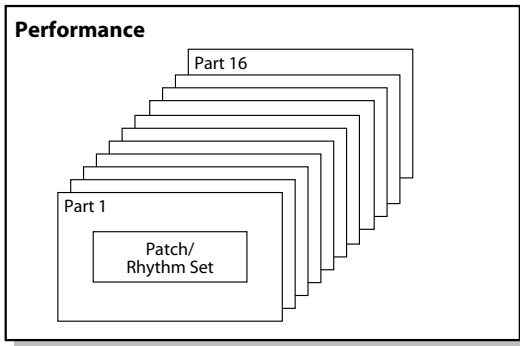
TVA (Time Variant Amplifier)

Envelope

Performances

A performance has a patch or rhythm set assigned to each of the 16 parts, and can simultaneously handle 16 sounds.

Because the Fantom sound generator can control multiple sounds (instruments) it is called a Multi-timbral sound generator.



Part

A "part" is something to which you assign a patch or rhythm set. The Fantom VS has sixteen parts, and you can assign a patch or rhythm set to each part.

About Simultaneous Polyphony

The Fantom VS can play a maximum of 128 sounds simultaneously. The following paragraphs discuss what this means, and what will happen when more than 128 simultaneous voices are requested from the Fantom VS.

Calculating the Number of Voices Being Used

The Fantom VS is able to play up to 128 notes simultaneously. The polyphony, or the number of voices (sounds) does not refer only to the number of patches actually being played, but changes according to the number of tones used in the patches, and the number of waves used in the tones. The following method is used to calculate the number of sounds used for one patch being played.

(Number of patches being played) x (Number of tones used by patches being played) x (Number of waves used in the tones)

For example, a patch that combines four tones, each of which use two waves, will use eight notes of polyphony at once.

How a Patch Sounds

When the Fantom VS is requested to play more than 128 voices simultaneously, currently sounding notes will be turned off to make room for newly requested notes. The note with the lowest priority will be turned off first. The order of priority is determined by the Patch Priority setting (p. 97). Patch Priority can be set either to "LAST" or "LOUDEST." When "LAST" is selected, a newly requested note that exceeds the 128 voice limit will cause the first-played of the currently sounding notes to be turned off. When "LOUDEST" is selected, the quietest of the currently sounding notes will be turned off. Usually, "LAST" is selected.

Note Priority in Performance

Since Performance is usually used to play an ensemble consisting of several patches, it is important to decide which parts take priority. Priority is specified by the Voice Reserve settings (p. 140). When a note within a patch needs to be turned off to make room for a new note, the Patch Priority setting of the patch will apply (p. 97).

Voice Reserve

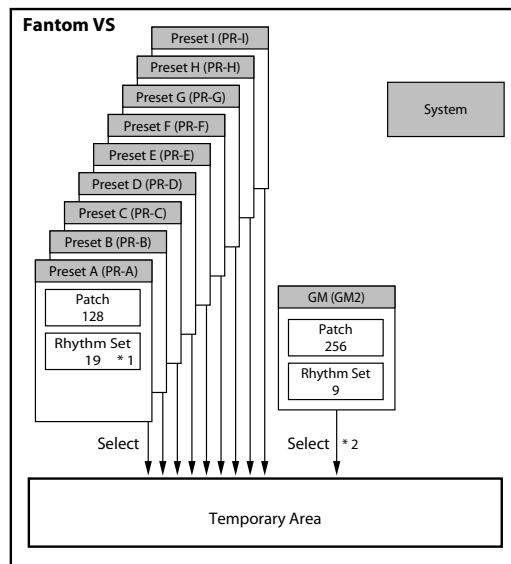
The Fantom VS has a Voice Reserve function that lets you reserve a minimum number of notes that will always be available for each part. For example if Voice Reserve is set to "10" for part 16, part 16 will always have 10 notes of sound-producing capacity available to it even if a total of more than 128 notes (total for all parts) are being requested. When you make Voice Reserve settings, you need to take into account the number of notes you want to play on each part as well as the number of tones used by the selected patch (p. 140).

MEMO

It is not possible to make Voice Reserve settings that would cause the total of all parts to be greater than 128 voices.

About Memory

Patch and performance settings are stored in what is referred to as memory. There are two kind of memory: temporary and non-rewritable.



* 1 Only in PR-A (PRST)

* 2 The selected Patches/Rhythm Sets cannot be changed.

Temporary Memory

Temporary Area

This is the area that holds the data for the patch that you've selected.

When you play the Fantom VS, sound is produced based on data in the temporary area. When you edit a patch, you do not directly modify the data in memory; rather, you call up the data into the temporary area, and edit it there.

Settings in the temporary area are temporary, and will be lost when the power is turned off or when you select another patch/performance.

Non-Rewritable Memory

Preset Memory

Data in Preset memory cannot be rewritten. However, you can call up settings from preset memory into the temporary area, and modify them.

About the Onboard Effects

Effect Types

The Fantom VS has built-in effect units, and you can independently edit each unit's settings.

Multi-Effects

The multi-effects are multi-purpose effects that completely change the sound type by changing the sound itself. Contained are 78 different effects types; select and use the type that suits your goals. In addition to effects types composed of simple effects such as Distortion, Flanger, and other such effects, you can also set up a wide variety of other effects, even connecting effects in series or in parallel. Furthermore, while chorus and reverb can be found among the multi-effects types, the following chorus and reverb are handled with a different system. Three types of multi-effect can be used simultaneously; these are referred to as MFX1, MFX2, and MFX3.

Chorus

Chorus adds depth and spaciousness to the sound. You can select whether to use this as a chorus effect or a delay effect.

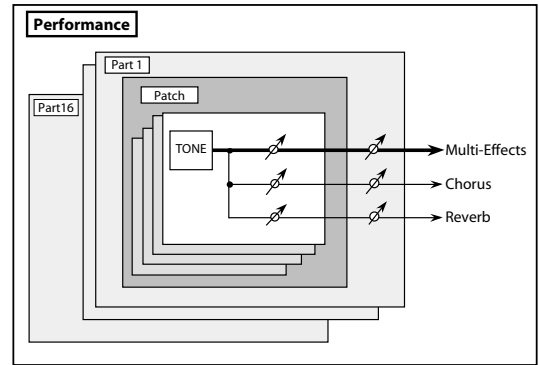
Reverb

Reverb adds the reverberation characteristics of halls or auditoriums. Five different types are offered, so you can select and use the type that suits your purpose.

How Effects Units Work

The multi-effects, chorus and reverb effects can be set individually. The intensity of each effect will be set for each part.

Depending on the settings, you can have effect settings for a patch or rhythm set assigned to a part applied to the entire performance.



Creating a Patch

With the Fantom VS, you have total control over a wide variety of settings. Each item that can be set is known as a **parameter**. This chapter explains the procedures used in creating patches, and the functions of the patch parameters.

How to Make Patch Settings

Start with an existing patch and edit it to create a new patch. Since a patch is a combination of up to any four tones, you should listen to how the individual tones sound before you edit.

Four Tips for Editing Patches

- **Select a patch that is similar to the sound you wish to create.**

It's hard to create a new sound that's exactly what you want if you just select a patch and modify its parameters at random. It makes sense to start with a patch whose sound is related to what you have in mind.

- **Decide which tones will sound.**

When creating a patch, it is important to decide which tones you are going to use. Set Tone Switch 1–4 to specify whether each tone will sound (on), or not (off). It is also important to turn off unused tones to avoid wasting voices, unnecessarily reducing the number of simultaneous notes you can play.

- **Check the Structure setting.**

The important Structure parameter determines how the four tones combine. Before you select new tones, make sure you understand how the currently selected tones are affecting each other.

- **Turn Effects off.**

Since the Fantom VS effects have such a profound impact on its sounds, turn them off to listen to the sound itself so you can better evaluate the changes you're making. Since you will hear the original sound of the patch itself when the effects are turned off, the results of your modifications will be easier to hear. Actually, sometimes just changing effects settings can give you the sound you want.

Functions of Patch Parameters

This section explains the functions the different patch parameters have, as well as the composition of these parameters.

MEMO

Parameters marked with a "★" can be controlled using specified MIDI messages (Matrix Control). Settings in the Control screen will determine how these parameters are controlled (p. 121).

Settings Common to the Entire Patch (GENERAL)

Patch General

Patch Category

Specifies the type (category) of the patch.

Category		Contents
---	No Assign	No assign
PNO	AC.Piano	Acoustic Piano
EP	EL.Piano	Electric Piano
KEY	Keyboards	Other Keyboards (Clav, Harpsichord etc.)
BEL	Bell	Bell, Bell Pad
MLT	Mallet	Mallet
ORG	Organ	Electric and Church Organ
ACD	Accordion	Accordion
HRM	Harmonica	Harmonica, Blues Harp
AGT	AC.Guitar	Acoustic Guitar
EGT	EL.Guitar	Electric Guitar
DGT	DIST.Guitar	Distortion Guitar
BS	Bass	Acoustic & Electric Bass
SBS	Synth Bass	Synth Bass
STR	Strings	Strings

Category		Contents
ORC	Orchestra	Orchestra Ensemble
HIT	Hit&Stab	Orchestra Hit, Hit
WND	Wind	Winds (Oboe, Clarinet etc.)
FLT	Flute	Flute, Piccolo
BRS	AC.Brass	Acoustic Brass
SBR	Synth Brass	Synth Brass
SAX	Sax	Sax
HLD	Hard Lead	Hard Synth Lead
SLD	Soft Lead	Soft Synth Lead
TEK	Techno Synth	Techno Synth
PLS	Pulsating	Pulsating Synth
FX	Synth FX	Synth FX (Noise etc.)
SYN	Other Synth	Poly Synth
BPD	Bright Pad	Bright Pad Synth
SPD	Soft Pad	Soft Pad Synth
VOX	Vox	Vox, Choir
PLK	Plucked	Plucked (Harp etc.)
ETH	Ethnic	Other Ethnic
FRT	Fretted	Fretted Inst (Mandolin etc.)
PRC	Percussion	Percussion
SFX	Sound FX	Sound FX
BTS	Beat&Groove	Beat and Groove
DRM	Drums	Drum Set
CMB	Combination	Other patches which use Split and Layer

Patch Level

Specifies the volume of the patch.

Value: 0–127

Patch Pan

Specifies the pan of the patch. “L64” is far left, “0” is center, and “63R” is far right.

Value: L64–0–63R

Patch Priority

This determines how notes will be managed when the maximum polyphony is exceeded (128 voices).

Value

LAST: The last-played voices will be given priority, and currently sounding notes will be turned off in order, beginning with the first-played note.

LOUDEST: The voices with the loudest volume will be given priority, and currently sounding notes will be turned off, beginning with the lowest-volume voice.

Octave Shift

Adjusts the pitch of the patch’s sound up or down in units of an octave (+/-3 octaves).

Value: -3– +3

Patch Coarse Tune ★

Adjusts the pitch of the patch’s sound up or down in semitone steps (+/-4 octaves).

Value: -48– +48

Patch Fine Tune

Adjusts the pitch of the patch’s sound up or down in 1-cent steps (+/-50 cents).

Value: -50– +50

MEMO

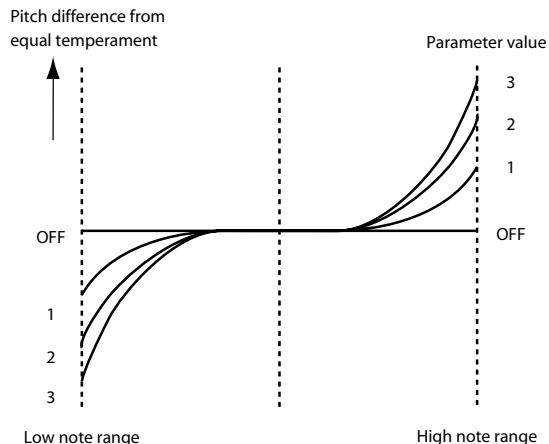
One cent is 1/100th of a semitone.

Stretch Tune Depth

This setting allows you to apply “stretched tuning” to the patch. (Stretched tuning is a system by which acoustic pianos are normally tuned, causing the lower range to be lower and the higher range to be higher than the mathematical tuning ratios would otherwise dictate.) With a setting of “OFF,” the patch’s tuning will be equal temperament. A setting of “3” will produce the greatest difference in the pitch of the low and high ranges.

Value: OFF, 1–3

The diagram shows the pitch change relative to equal temperament that will occur in the low and high ranges. This setting will have a subtle effect on the way in which chords resonate.



Analog Feel (Analog Feel Depth)

Specifies the depth of 1/f modulation that is to be applied to the patch. (1/f modulation is a pleasant and naturally-occurring ratio of modulation that occurs in a babbling brook or rustling wind.)

By adding this “1/f modulation,” you can simulate the natural instability characteristic of an analog synthesizer.

Value: 0–127

Cutoff Offset

Cutoff Frequency Offset alters the cutoff frequency of the overall patch, while preserving the relative differences between the cutoff frequency values set for each tone in the Cutoff Frequency parameters (p. 110).

Range: -63– +63

NOTE

This value is added to the cutoff frequency value of a tone, so if the cutoff frequency value of any tone is already set to “127” (maximum), positive “+” settings here will not produce any change.

Resonance Offset

Resonance Offset alters the resonance of the overall patch, while preserving the relative differences between the resonance values set for each tone in the Resonance parameter (p. 110).

Range: -63– +63

* **Resonance:** emphasizes the overtones in the region of the cutoff frequency, adding character to the sound.

NOTE

This value is added to the resonance value of a tone, so if the resonance value of any tone is already set to “127” (maximum), positive “+” settings here will not produce any change.

Attack Time Offset

Attack Time Offset alters the attack time of the overall patch, while preserving the relative differences between the attack time values set for each tone in the A-Env Time 1 parameters (p. 115), F-Env Time 1 parameters (p. 112).

Range: -63– +63

* **Attack Time:** The time it takes for a sound to reach maximum volume after the key is pressed and sound begun.

NOTE

This value is added to the attack time value of a tone, so if the attack time value of any tone is already set to “127” (maximum), positive “+” settings here will not produce any change.

Release Time Offset

Release Time Offset alters the release time of the overall patch, while preserving the relative differences between the release time values set for each tone in the A-Env Time 4 parameters (p. 115), F-Env Time 4 parameters (p. 112).

Range: -63– +63

- * **Release Time:** The time from when you take your finger off the key until the sound disappears.

NOTE

This value is added to the release time value of a tone, so if the release time value of any tone is already set to "127" (maximum), positive "+" settings here will not produce any change.

Velocity Sens Offset (Velocity Sensitivity Offset)

Velocity Sensitivity Offset alters the Velocity Sensitivity of the overall patch while preserving the relative differences between the Velocity Sensitivity values set for each tone in the parameters below.

Cutoff V-Sens parameter (p. 111)

Level V-Sens parameter (p. 113)

Range: -63– +63

- * **Velocity:** Pressure with which the key is pressed.

NOTE

This value is added to the velocity sensitivity value of a tone, so if the velocity sensitivity value of any tone is already set to "+63" (maximum), positive "+" settings here will not produce any change.

Mono/Poly

Specifies whether the patch will play polyphonically (POLY) or monophonically (MONO). The "MONO" setting is effective when playing a solo instrument patch such as sax or flute.

Value

MONO: Only the last-played note will sound.

POLY: Two or more notes can be played simultaneously.

Legato Switch

Legato Switch is valid when the Mono/Poly parameter is set to "MONO." This setting specifies whether the Legato Switch will be used (ON) or not (OFF).

With the Legato Switch parameter "ON," pressing a key while continuing to press a previous key causes the note to change pitch to the pitch of the most recently pressed key, sounding all the while. This creates a smooth transition between notes, which is effective when you wish to simulate the hammering-on and pulling-off techniques used by a guitarist.

Value: OFF, ON

Legato Retrigger (Legato Retrigger Switch)

The Legato Retrigger is valid when the Mono/Poly parameter is set to "MONO" and the Legato Switch parameter is set to "ON." The setting determines whether sounds are replayed (ON) or not (OFF) when performing legato. Normally you will leave this parameter "ON." When "OFF," when one key is held down and another key is then pressed, only the pitch changes, without the attack of the latter key being played. Set this to "OFF" when performing wind and string phrases or when using modulation with the mono synth keyboard sound.

Value: OFF, ON

Let's say you have the Legato Switch set to "ON," and the Legato Retrigger set to "OFF." When you try to sound a legato (by pressing a higher key while a lower key is held down), the pitch may sometimes not be able to rise all the way to the intended pitch (stopping instead at an intermediate pitch). This can occur because the limit of pitch rise, as determined at the wave level, has been exceeded. Additionally, if differing upper pitch limits are used for the waves of a Patch that uses multiple tones, it may stop being heard in MONO. When making large pitch changes, set the Legato Retrigger to "ON."

Portamento Switch

Specifies whether the portamento effect will be applied (ON) or not (OFF).

Value: OFF, ON

Portamento

Portamento is an effect which smoothly changes the pitch from the first-played key to the next-played key. By applying portamento when the Mono/Poly parameter is "MONO," you can simulate slide performance techniques on a violin or similar instrument.

Portamento Mode

Specifies the performance conditions for which portamento will be applied.

Value

NORMAL: Portamento will always be applied.

LEGATO: Portamento will be applied only when you play legato (i.e., when you press the next key before releasing the previous key).

Portamento Type

Specifies the type of portamento effect.

Value

RATE: The time it takes will depend on the distance between the two pitches.

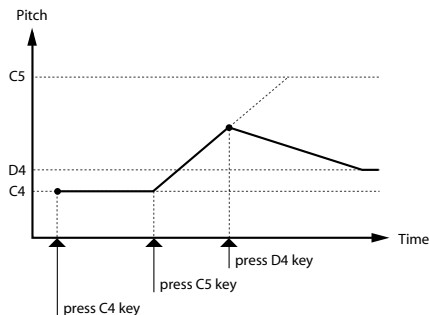
TIME: The time it takes will be constant, regardless of how far apart in pitch the notes are.

Portamento Start

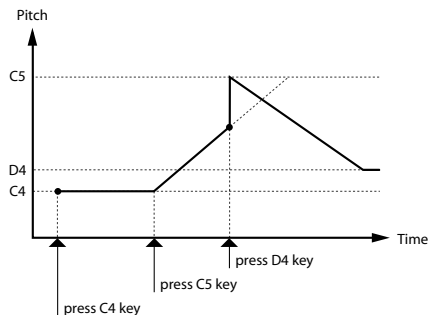
When another key is pressed during a pitch change produced by portamento, a new pitch change will begin. This setting specifies the pitch at which the change will begin.

Value

PITCH: Starts a new portamento when another key is pressed while the pitch is changing.



NOTE: Portamento will begin anew from the pitch where the current change would end.



Portamento Time

When portamento is used, this specifies the time over which the pitch will change. Higher settings will cause the pitch change to the next note to take more time.

Value: 0-127

Changing How a Tone Is Sounded (TMT)

You can use the force with which keys are played, or MIDI messages to control the way each Tone is played. This is referred to as the Tone Mix Table (TMT).

cf. ➔

For details on these settings, refer to **How to Make Patch Settings** (p. 96).

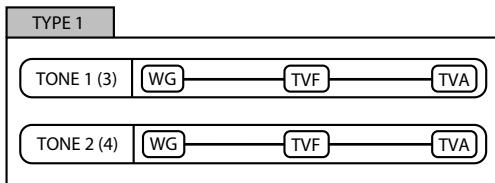
Patch TMT

Structure Type 1 & 2, 3 & 4

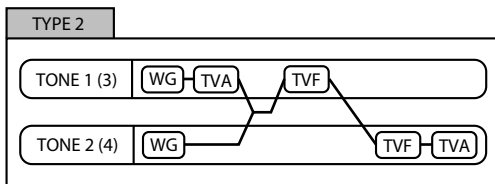
Determines how tone 1 and 2, or tone 3 and 4 are connected.

Value: 1–10

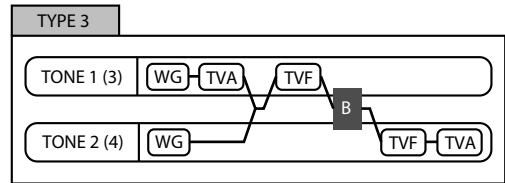
The following 10 different Types of combination are available.



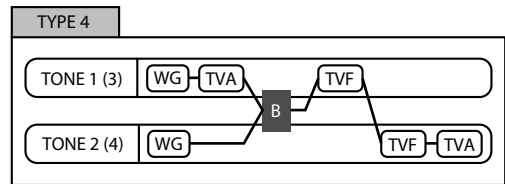
With this type, tones 1 and 2 (or 3 and 4) are independent. Use this type when you want to preserve PCM sounds or create and combine sounds for each tone.



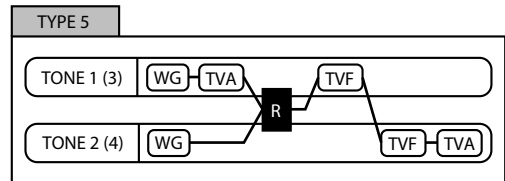
This type stacks the two filters together to intensify the characteristics of the filters. The TVA for tone 1 (or 3) controls the volume balance between the two tones.



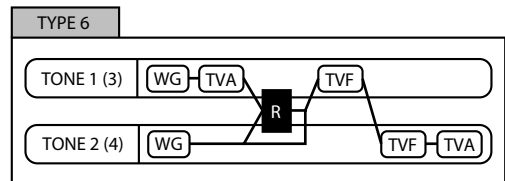
This type mixes the sound of tone 1 (3) and tone 2 (4), applies a filter, and then applies a booster to distort the waveform.



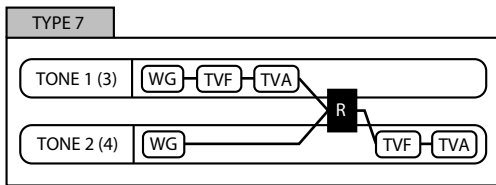
This type applies a booster to distort the waveform, and then combines the two filters. The TVA for tone 1 (or 3) controls the volume balance between the two tones and adjusts booster level.



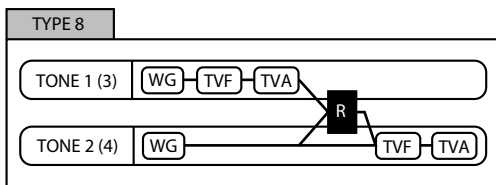
This type uses a ring modulator to create new overtones, and combines the two filters. The tone 1 (3) TVA will control the volume balance of the two tones, adjusting the depth of ring modulator.



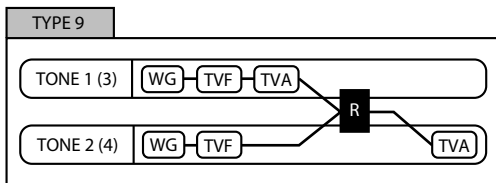
This type uses a ring modulator to create new overtones, and in addition mixes in the sound of tone 2 (4) and stacks the two filters. Since the ring-modulated sound can be mixed with tone 2 (4), tone 1 (3) TVA can adjust the amount of the ring-modulated sound.



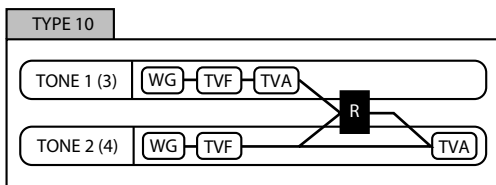
This type applies a filter to tone 1 (3) and ring-modulates it with tone 2 (4) to create new overtones.



This type sends the filtered tone 1 (3) and tone 2 (4) through a ring modulator, and then mixes in the sound of tone 2 (4) and applies a filter to the result.



This type passes the filtered sound of each tone through a ring modulator to create new overtones. The tone 1 (3) TVA will control the volume balance of the two tones, adjusting the depth of ring modulator.



This type passes the filtered sound of each tone through a ring modulator to create new overtones, and also mixes in the sound of tone 2 (4). Since the ring-modulated sound can be mixed with tone 2 (4), tone 1 (3) TVA can adjust the amount of the ring-modulated sound.

- When TYPE 2–10 is selected and one tone of a pair is turned off, the other tone will be sounded as TYPE 1 regardless of the displayed setting.
- If you limit the keyboard area in which a tone will sound (Keyboard Range p. 103) or limit the range of velocities for which it will sound (Velocity Range p. 104), the result in areas or ranges where the tone does not sound is just as if the tone had been turned off. This means that if TYPE 2–10 is selected and you create a keyboard area or velocity range in which one tone of a pair does not sound, notes played in that area or range will be sounded by the other tone as TYPE 1 regardless of the displayed setting.

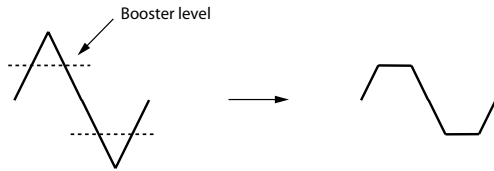
Booster 1&2, 3&4 (Booster Gain)

When a Structure Type of TYPE 3 or TYPE 4 is selected, you can adjust the depth of the booster. The booster increases the input signal in order to distort the sound. This creates the distortion effect frequently used with electric guitars. Higher settings will produce more distortion.

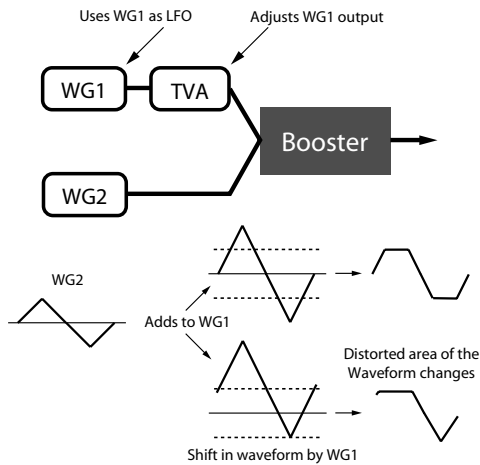
Value: 0, +6, +12, +18

Booster

The Booster is used to distort the incoming signal.



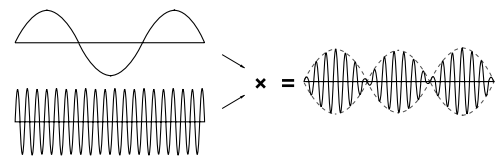
In addition to using this to create distortion, you can use the waveform (WG1) of one of the tones as an LFO which shifts the other waveform (WG2) upward or downward to create modulation similar to PWM (pulse width modulation). This parameter works best when you use it in conjunction with the Wave Gain parameter (p. 105).



Ring Modulator

A ring modulator multiplies the waveforms of two tones with each other, generating many new overtones (in harmonic partials) which were not present in either waveform. (Unless one of the waveforms is a sine wave, evenly-spaced frequency components will not usually be generated.)

As the pitch difference between the two waveforms changes the harmonic structure, the result will be an unpitched metallic sound. This function is suitable for creating metallic sounds such as bells.



Key Fade Lower (Keyboard Fade Width Lower)

This determines what will happen to the tone's level when a note that's lower than the tone's specified keyboard range is played. Higher settings produce a more gradual change in volume. If you don't want the tone to sound at all when a note below the keyboard range is played, set this parameter to "0."

Value: 0–127

Key Range Lower (Keyboard Range Lower)

Specifies the lowest note that the tone will sound for each tone.

Value: C-1–UPPER

Key Range Upper (Keyboard Range Upper)

Specifies the highest note that the tone will sound for each tone.

Value: LOWER–G9

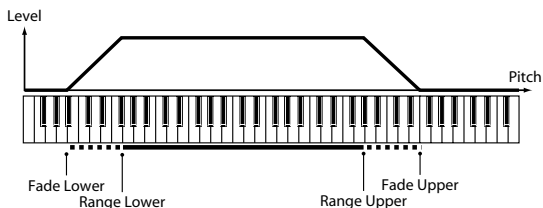
NOTE

If you attempt to raise the lower key higher than the upper key, or to lower the upper key below the lower key, the other value will be automatically modified to the same setting.

Key Fade Upper (Keyboard Fade Width Upper)

This determines what will happen to the tone's level when a note that's higher than the tone's specified keyboard range is played. Higher settings produce a more gradual change in volume. If you don't want the tone to sound at all when a note below the keyboard range is played, set this parameter to "0."

Value: 0–127



TMT Velocity Control (TMT Velocity Control Switch)

TMT Velocity Control determines whether a different tone is played (ON) or not (OFF) depending on the force with which the key is played (velocity).

When set to "RANDOM," the patch's constituent tones will sound randomly, regardless of any Velocity messages.

When set to "CYCLE," the patch's constituent tones will sound consecutively, regardless of any Velocity messages.

Value: OFF, ON, RANDOM, CYCLE

NOTE

Instead of using Velocity, you can also have tones substituted using the Matrix Control (p. 105). However, the keyboard velocity and the Matrix Control cannot be used simultaneously to make different tones to sound. When using the Matrix Control to switch tones, set the Velocity Control parameter to "OFF."

Velo Fade Lower (Velocity Fade Width Lower)

This determines what will happen to the tone's level when the tone is played at a velocity lower than its specified velocity range. Higher settings produce a more gradual change in volume. If you want notes played outside the specified key velocity range to not be sounded at all, set this to "0."

Value: 0–127

Velo Range Lower (Velocity Range Lower)

This sets the lowest velocity at which the tone will sound. Make these settings when you want different tones to sound in response to notes played at different strengths.

Value: 1–UPPER

Velo Range Upper (Velocity Range Upper)

This sets the highest velocity at which the tone will sound. Make these settings when you want different tones to sound in response to notes played at different strengths.

Value: LOWER–127

NOTE

If you attempt to set the Lower velocity limit above the Upper, or the Upper below the Lower, the other value will automatically be adjusted to the same setting.

MEMO

When using the Matrix Control to have different tones played, set the lowest value (Lower) and highest value (Upper) of the value of the MIDI message used.

Velo Fade Upper (Velocity Fade Width Upper)

This determines what will happen to the tone's level when the tone is played at a velocity greater than its specified velocity range. Higher settings produce a more gradual change in volume. If you want notes played outside the specified key velocity range to not be sounded at all, set this to "0."

Value: 0–127



TMT Control Sw (TMT Control Switch)

Use the Matrix Control to enable (ON), or disable (OFF) sounding of different tones.

Value: OFF, ON

NOTE

You can also cause different tones to sound in response to notes played at different strengths (velocity) on the keyboard (p. 104). However, the Matrix Control and the keyboard velocity cannot be used simultaneously to make different tones to sound. When you want to make the different tones to sound, set the Velocity Control parameter (p. 104) to "OFF."

Modifying Waveforms (WG)

Patch WG

Wave No. L (Mono) (Wave Number L (Mono)) Wave No. R (Wave Number R)

Selects the basic waveform for a tone. Along with the Wave number, the Wave name will appear at the lower part of the display.

When in monaural mode, only the left side (L) is specified. When in stereo, the right side (R) is also specified.

- * When using a multisample in stereo, you must specify the same number for L and R.

Value: —, 1–1240 (The upper limit will depend on the wave group.)

- * When using a multisample in stereo, you must specify the same number for L and R.

Wave Gain

Sets the gain (amplification) of the waveform. The value changes in 6 dB (decibel) steps—an increase of 6 dB doubles the waveform's gain. If you intend to use the Booster to distort the waveform's sound, set this parameter to its maximum value (p. 103).

Value: -6, 0, +6, +12

FXM Switch

This sets whether FXM will be used (ON) or not (OFF).

Value: OFF, ON

FXM

FXM (Frequency Cross Modulation) uses a specified waveform to apply frequency modulation to the currently selected waveform, creating complex overtones. This is useful for creating dramatic sounds or sound effects.

FXM Color

Specifies how FXM will perform frequency modulation. Higher settings result in a grainier sound, while lower settings result in a more metallic sound.

Value: 1–4

FXM Depth ★

Specifies the depth of the modulation produced by FXM.

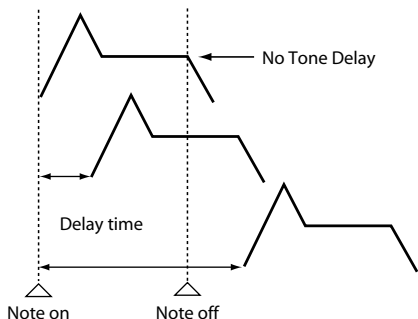
Value: 0–16

Tone Delay Mode

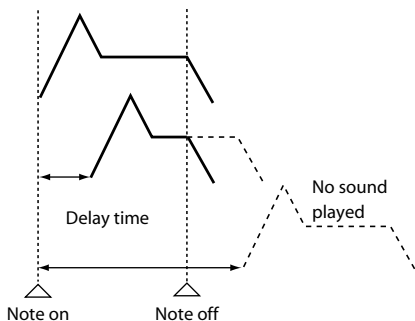
Selects the type of tone delay.

Value

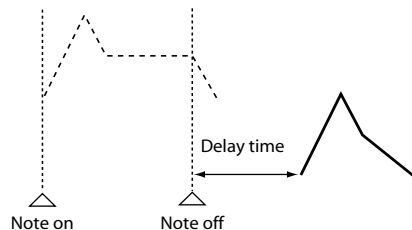
NORM: The tone begins to play after the time specified in the Delay Time parameter has elapsed.



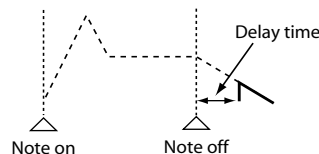
HOLD: Although the tone begins to play after the time specified in the Delay Time parameter has elapsed, if the key is released before the time specified in the Delay Time parameter has elapsed, the tone is not played.



OFF-N: Rather than being played while the key is pressed, the tone begins to play once the period of time specified in the Delay Time parameter has elapsed after release of the key. This is effective in situations such as when simulating noises from guitars and other instruments.



OFF-D: Rather than being played while the key is pressed, the tone begins to play once the period of time specified in the Delay Time parameter has elapsed after release of the key. Here, however, changes in the TVA Envelope begin while the key is pressed, which in many cases means that only the sound from the release portion of the envelope is heard.



NOTE

If you have selected a waveform that is a decay-type sound (i.e., a sound that fades away naturally even if the key is not released), selecting "OFF-N" or "OFF-D" may result in no sound being heard.

Tone Delay

This produces a time delay between the moment a key is pressed (or released), and the moment the tone actually begins to sound. You can also make settings that shift the timing at which each tone is sounded. This differs from the Delay in the internal effects, in that by changing the sound qualities of the delayed tones and changing the pitch for each tone, you can also perform arpeggio-like passages just by pressing one key.

You can also synchronize the tone delay time to the tempo of the external MIDI sequencer.

NOTE

If you are not going to use Tone Delay, set the Delay Mode parameter to "NORM" and Delay Time parameter to "0."

- If the Structure parameters set in the range of "2"–"10," the output of tones 1 and 2 will be combined into tone 2, and the output of tones 3 and 4 will be combined into tone 4. For this reason, tone 1 will follow the settings of tone 2, and tone 3 will follow the settings of tone 4 (p. 101).

Tone Delay Time

Specifies the time from when the key is pressed (or if the Delay Mode parameter is set to "OFF-N" or "OFF-D," the time from when the key is released) until when the tone will sound.

Value: 0–127, Note

Tone Delay Time specifies the beat length for the synchronized tempo when the tempo that specifies the elapsed time until the tone is sounded (Patch Tempo) is synchronized with the tempo set in an external MIDI sequencer.

(Example)

For a tempo of 120 (120 quarter notes occur in 1 minute (60 seconds))

Setting	Delay time
♩ (half note)	1 second (60 / 60 = 1 (second))
♪ (quarter note)	0.5 seconds (60 / 120 = 0.5 (seconds))
♫ (eighth note)	0.25 seconds (60 / 240 = 0.25 (seconds))

Tone Coarse Tune ★

Adjusts the pitch of the tone's sound up or down in semitone steps (+/-4 octaves).

Value: -48– +48

Tone Fine Tune ★

Adjusts the pitch of the tone's sound up or down in 1-cent steps (+/-50 cents).

Value: -50– +50

MEMO

One cent is 1/100th of a semitone.

Random Pitch Depth

This specifies the width of random pitch deviation that will occur each time a key is pressed. If you do not want the pitch to change randomly, set this to "0." These values are in units of cents (1/100th of a semitone).

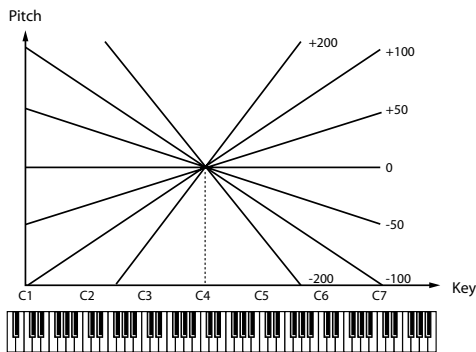
Value: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200

Pitch Keyfollow

This specifies the amount of pitch change that will occur when you play a key one octave higher (i.e., 12 keys upward on the keyboard).

If you want the pitch to rise one octave as on a conventional keyboard, set this to "+100." If you want the pitch to rise two octaves, set this to "+200." Conversely, set this to a negative value if you want the pitch to fall. With a setting of "0," all keys will produce the same pitch.

Value: -200, -190, -180, -170, -160, -150, -140, -130, -120, -110, -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100, +110, +120, +130, +140, +150, +160, +170, +180, +190, +200



Bend Range Up (Pitch Bend Range Up)

Specifies the degree of pitch change in semitones when the Pitch Bend lever is all the way right. For example, if this parameter is set to "12," the pitch will rise one octave when the pitch bend lever is moved to the right-most position.

Value: 0– +48

Bend Range Down (Pitch Bend Range Down)

Specifies the degree of pitch change in semitones when the Pitch Bend lever is all the way left. For example if this is set to "-48" and you move the pitch bend lever all the way to the left, the pitch will fall 4 octaves.

Value: -48–0

Patch Pitch Env (Patch Pitch Envelope)

P-Env Depth (Pitch Envelope Depth)

Adjusts the effect of the Pitch Envelope. Higher settings will cause the pitch envelope to produce greater change. Negative (-) settings will invert the shape of the envelope.

Value: -12– +12

P-Env V-Sens (Pitch Envelope Velocity Sensitivity)

Keyboard playing dynamics can be used to control the depth of the pitch envelope. If you want the pitch envelope to have more effect for strongly played notes, set this parameter to a positive (+) value. If you want the pitch envelope to have less effect for strongly played notes, set this to a negative (-) value.

Value: -63– +63

P-Env T1 V-Sens (Pitch Envelope Time 1 Velocity Sensitivity)

This allows keyboard dynamics to affect the Time 1 of the Pitch envelope. If you want Time 1 to be speeded up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Value: -63– +63

P-Env T4 V-Sens (Pitch Envelope Time 4 Velocity Sensitivity)

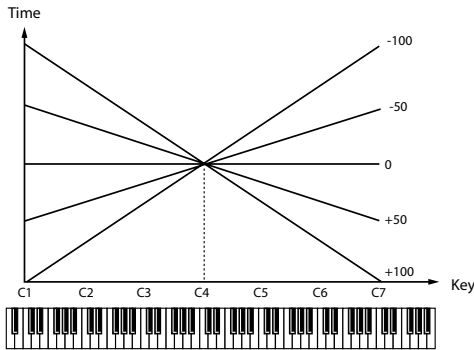
Use this parameter when you want key release speed to affect the Time 4 value of the pitch envelope. If you want Time 4 to be speeded up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Value: -63– +63

P-Env Time KF (Pitch Envelope Time Keyfollow)

Use this setting if you want the pitch envelope times (Time 2–Time 4) to be affected by the keyboard location. Based on the pitch envelope times for the C4 key, positive (+) settings will cause notes higher than C4 to have increasingly shorter times, and negative (-) settings will cause them to have increasingly longer times. Larger settings will produce greater change.

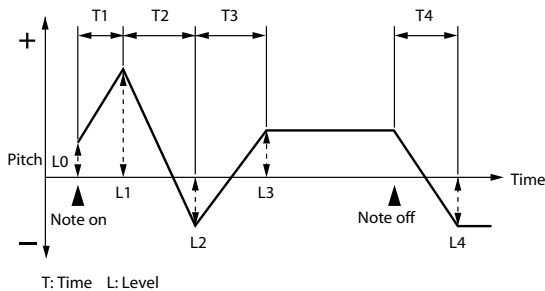
Value: -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100



P-Env Time 1–4 (Pitch Envelope Time 1–4) ★

Specify the pitch envelope times (Time 1–Time 4). Higher settings will result in a longer time until the next pitch is reached. (For example, Time 2 is the time over which the pitch changes from Level 1 to Level 2.)

Value: 0–127



P-Env Level 0–4 (Pitch Envelope Level 0–4)

Specify the pitch envelope levels (Level 0–Level 4). It determines how much the pitch changes from the reference pitch (the value set with Coarse Tune or Fine Tune on the Pitch screen) at each point. Positive (+) settings will cause the pitch to be higher than the standard pitch, and negative (-) settings will cause it to be lower.

Value: -63– +63

Modifying the Brightness of a Sound with a Filter (TVF/TVF Env)

Patch TVF

Filter Type

Selects the type of filter. A filter cuts or boosts a specific frequency region to change a sound's brightness, thickness, or other qualities.

Value

OFF: No filter is used.

LPF: Low Pass Filter. This reduces the volume of all frequencies above the cutoff frequency (Cutoff Freq) in order to round off, or un-brighten the sound. This is the most common filter used in synthesizers.

BPF: Band Pass Filter. This leaves only the frequencies in the region of the cutoff frequency (Cutoff Freq), and cuts the rest. This can be useful when creating distinctive sounds.

HPF: High Pass Filter. This cuts the frequencies in the region below the cutoff frequency (Cutoff Freq). This is suitable for creating percussive sounds emphasizing their higher tones.

PKG: Peaking Filter. This emphasizes the frequencies in the region of the cutoff frequency (Cutoff Freq). You can use this to create wah-wah effects by employing an LFO to change the cutoff frequency cyclically.

LPF2: Low Pass Filter 2. Although frequency components above the Cutoff frequency (Cutoff Freq) are cut, the sensitivity of this filter is half that of the LPF. This makes it a comparatively warmer low pass filter. This filter is good for use with simulated instrument sounds such as the acoustic piano.

LPF3: Low Pass Filter 3. Although frequency components above the Cutoff frequency (Cutoff Freq) are cut, the sensitivity of this filter changes according to the Cutoff frequency. While this filter is also good for use with simulated acoustic instrument sounds, the nuance it exhibits differs from that of the LPF2, even with the same TVF Envelope settings.

NOTE

If you set "LPF2" or "LPF3," the setting for the Resonance parameter will be ignored (p. 110).

Cutoff Frequency ★

Selects the frequency at which the filter begins to have an effect on the waveform's frequency components.

Value: 0–127

With "LPF/LPF2/LPF3" selected for the Filter Type parameter, lower cutoff frequency settings reduce a tone's upper harmonics for a more rounded, warmer sound. Higher settings make it sound brighter.

If "BPF" is selected, harmonic components will change depending on the TVF Cutoff Frequency setting. This can be useful when creating distinctive sounds.

With "HPF" selected, higher Cutoff Frequency settings will reduce lower harmonics to emphasize just the brighter components of the sound.

With "PKG" selected, the harmonics to be emphasized will vary depending on Cutoff Frequency setting.



To edit the overall patch while preserving the relative differences in the Cutoff Frequency values set for each tone, set the Cutoff Offset parameter (p. 98).

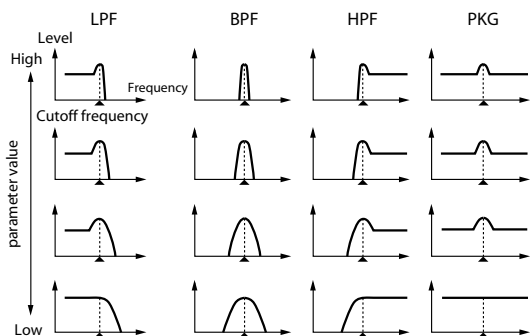
Resonance ★

Emphasizes the portion of the sound in the region of the cutoff frequency, adding character to the sound. Excessively high settings can produce oscillation, causing the sound to distort.

Value: 0–127



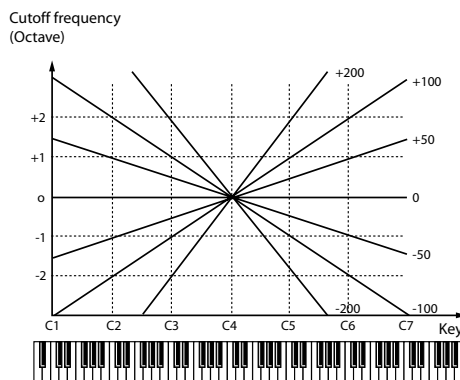
To edit the overall patch while preserving the relative differences in the Resonance values set for each tone, set the Resonance Offset parameter (p. 98).



Cutoff Keyfollow

Use this parameter if you want the cutoff frequency to change according to the key that is pressed. Relative to the cutoff frequency at the C4 key (center C), positive (+) settings will cause the cutoff frequency to rise for notes higher than C4, and negative (-) settings will cause the cutoff frequency to fall for notes higher than C4. Larger settings will produce greater change.

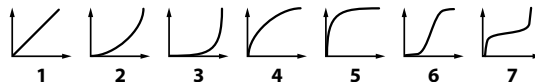
Value: -200, -190, -180, -170, -160, -150, -140, -130, -120, -110, -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100, +110, +120, +130, +140, +150, +160, +170, +180, +190, +200



Cutoff V-Curve (Cutoff Frequency Velocity Curve)

Selects one of the following seven curves that determine how keyboard playing dynamics (velocity) influence the cutoff frequency. Set this to "FIXED" if you don't want the Cutoff frequency to be affected by the keyboard velocity.

Value: FIXED, 1–7



Cutoff V-Sens (Cutoff Velocity Sensitivity)

Use this parameter when changing the cutoff frequency to be applied as a result of changes in playing velocity. If you want strongly played notes to raise the cutoff frequency, set this parameter to positive (+) settings. If you want strongly played notes to lower the cutoff frequency, use negative (-) settings.

Value: -63– +63



To edit the overall patch while preserving the relative differences in the Cutoff Frequency Velocity Sensitivity values set for each tone, set the Velocity Sens Offset parameter (p. 99). However, this setting is shared by the Level V-Sens parameter (p. 113).

Resonance V-Sens (Resonance Velocity Sensitivity)

This allows keyboard velocity to modify the amount of Resonance. If you want strongly played notes to have a greater Resonance effect, set this parameter to positive (+) settings. If you want strongly played notes to have less Resonance, use negative (-) settings.

Value: -63– +63

Patch TVF Env (Patch TVF Envelope)

F-Env Depth (TVF Envelope Depth)

Specifies the depth of the TVF envelope. Higher settings will cause the TVF envelope to produce greater change. Negative (-) settings will invert the shape of the envelope.

Value: -63– +63

F-Env V-Curve (TVF Envelope Velocity Curve)

Selects one of the following 7 curves that will determine how keyboard playing dynamics will affect the TVF envelope. Set this to “FIX” if you don’t want the TVF Envelope to be affected by the keyboard velocity.

Value: FIX, 1–7



F-Env V-Sens (TVF Envelope Velocity Sensitivity)

Specifies how keyboard playing dynamics will affect the depth of the TVF envelope. Positive (+) settings will cause the TVF envelope to have a greater effect for strongly played notes, and negative (-) settings will cause the effect to be less.

Value: -63– +63

F-Env T1 V-Sens (TVF Envelope Time 1 Velocity Sensitivity)

This allows keyboard dynamics to affect the Time 1 of the TVF envelope. If you want Time 1 to be speeded up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Value: -63– +63

F-Env T4 V-Sens
(TVF Envelope Time 4 Velocity Sensitivity)

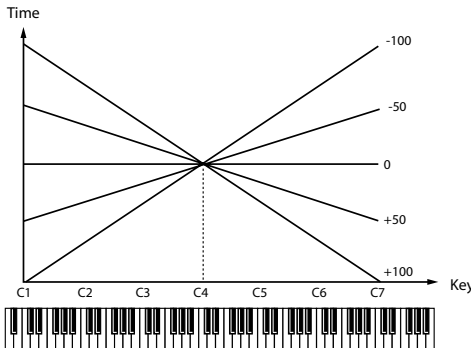
The parameter to use when you want key release speed to control the Time 4 value of the TVF envelope. If you want Time 4 to be speeded up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Value: -63- +63

F-Env Time KF (TVF Envelope Time Keyfollow)

Use this setting if you want the TVA envelope times (Time 2–Time 4) to be affected by the keyboard location. Based on the TVF envelope times for the C4 key (center C), positive (+) settings will cause notes higher than C4 to have increasingly shorter times, and negative (-) settings will cause them to have increasingly longer times. Larger settings will produce greater change.

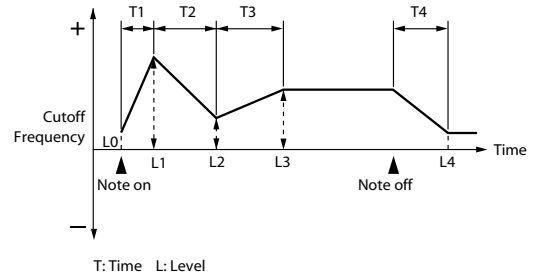
Value: -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100



F-Env Time 1–4 (TVF Envelope Time 1–4) ★

Specify the TVF envelope times (Time 1–Time 4). Higher settings will lengthen the time until the next cutoff frequency level is reached. (For example, Time 2 is the time over which Level 1 will change to Level 2.)

Value: 0–127



F-Env Level 0–4 (TVF Envelope Level 0–4)

Specify the TVF envelope levels (Level 0–Level 4). These settings specify how the cutoff frequency will change at each point, relative to the standard cutoff frequency (the cutoff frequency value specified in the TVF screen).

Value: 0–127

Adjusting the Volume (TVA/TVA Env)

Patch TVA

Tone Level ★

Sets the volume of the tone. This setting is useful primarily for adjusting the volume balance between tones.

Value: 0–127

Level V-Curve (TVA Level Velocity Curve)

You can select from seven curves that determine how keyboard playing strength will affect the volume. If you do not want the volume of the tone to be affected by the force with which you play the key, set this to "FIXED."

Value: FIXED, 1–7



Level V-Sens (TVA Level Velocity Sensitivity)

Set this when you want the volume of the tone to change depending on the force with which you press the keys. Set this to a positive (+) value to have the changes in tone volume increase the more forcefully the keys are played; to make the tone play more softly as you play harder, set this to a negative (-) value.

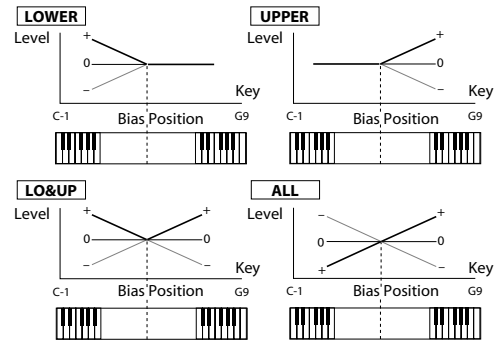
Value: -63– +63

TIP

If you wish to make adjustments to the entire patch while maintaining the relative values of TVA Level Velocity Sensitivity among tones, adjust the Velocity Sens Offset parameter (p. 99). However, this setting is shared by the Cutoff V-Sens parameter (p. 111).

Bias

Bias causes the volume to be affected by the keyboard position. This is useful for changing volume through keyboard position (pitch) when playing acoustic instruments.



Bias Level

Adjusts the angle of the volume change that will occur in the selected Bias Direction. Larger settings will produce greater change. Negative (-) values will invert the change direction.

Value: -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100

Bias Position

Specifies the key relative to which the volume will be modified.

Value: C-1–G9

Bias Direction

Selects the direction in which change will occur starting from the Bias Position.

Value

LOWER: The volume will be modified for the keyboard area below the Bias Point.

UPPER: The volume will be modified for the keyboard area above the Bias Point.

LO&UP: The volume will be modified symmetrically toward the left and right of the Bias Point.

ALL: The volume changes linearly with the bias point at the center.

Tone Pan ★

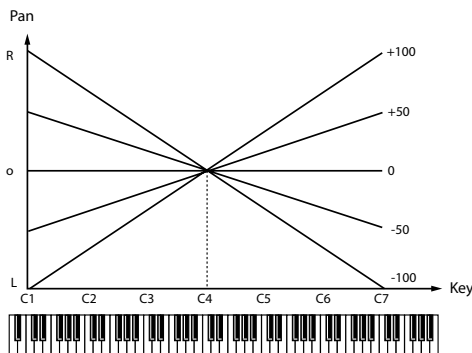
Sets the pan of the tone. "L64" is far left, "0" is center, and "63R" is far right.

Value: L64-0-63R

Pan Keyfollow

Use this parameter if you want key position to affect panning. Positive (+) settings will cause notes higher than C4 key (center C) to be panned increasingly further toward the right, and negative (-) settings will cause notes higher than C4 key (center C) to be panned toward the left. Larger settings will produce greater change.

Value: -100- +100



Random Pan Depth

Use this parameter when you want the stereo location to change randomly each time you press a key. Higher settings will produce a greater amount of change.

Value: 0-63

Alternate Pan Depth

This setting causes panning to be alternated between left and right each time a key is pressed. Higher settings will produce a greater amount of change. "L" or "R" settings will reverse the order in which the pan will alternate between left and right. For example if two tones are set to "L" and "R" respectively, the panning of the two tones will alternate each time they are played.

Value: L63-0-63R

NOTE

When any value from Type "2"- "10" is selected for the Structure parameter in the Pan KF, Rnd Pan Depth, Alter Pan Depth parameter settings, the output of tones 1 and 2 are joined in tone 2, and the output of tones 3 and 4 are joined in tone 4. For this reason, tone 1 will follow the settings of tone 2, and tone 3 will follow the settings of tone 4 (p. 101).

Patch TVA Env

A-Env T1 V-Sens (TVA Envelope Time 1 Velocity Sensitivity)

This allows keyboard dynamics to affect the Time 1 of the TVA envelope. If you want Time 1 to be speeded up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Value: -63– +63

A-Env T4 V-Sens (TVA Envelope Time 4 Velocity Sensitivity)

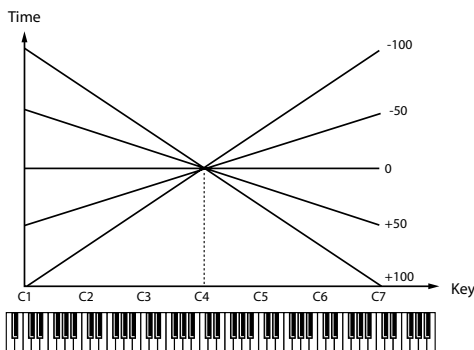
The parameter to use when you want key release speed to control the Time 4 value of the TVA envelope. If you want Time 4 to be speeded up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Value: -63– +63

A-Env Time KF (TVA Envelope Time Keyfollow)

Use this setting if you want the TVA envelope times (Time 2–Time 4) to be affected by the keyboard location. Based on the TVA envelope times for the C4 key (center C), positive (+) settings will cause notes higher than C4 to have increasingly shorter times, and negative (-) settings will cause them to have increasingly longer times. Larger settings will produce greater change.

Value: -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100



A-Env Time 1–4 (TVA Envelope Time 1–4) ★

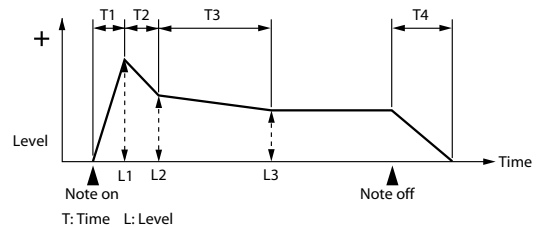
Specify the TVA envelope times (Time 1–Time 4). Higher settings will lengthen the time until the next volume level is reached. (For example, Time 2 is the time over which Level 1 will change to Level 2.)

Value: 0–127

A-Env Level 1–3 (TVA Envelope Level 1–3)

Specify the TVA envelope levels (Level 1–Level 3). These settings specify how the volume will change at each point, relative to the standard volume (the Tone Level value specified in the TVA screen).

Value: 0–127



Output Settings

Patch Output

Patch Out Assign

Specifies how the direct sound of each patch will be output.

Value:

MFX: Output in stereo through multi-effects. You can also apply chorus or reverb to the sound that passes through multi-effects.

L+R: Output in stereo without passing through multi-effects.

L, R: Output in mono without passing through multi-effects.

TONE: Outputs according to the settings for each tone.

Tone Out Assign

Specifies how the direct sound of each tone will be output.

Value:

MFX: Output in stereo through multi-effects. You can also apply chorus or reverb to the sound that passes through multi-effects.

L+R: Output in stereo without passing through multi-effects.

L, R: Output in mono without passing through multi-effects.

- * If the Patch Output Assign is set to anything other than "TONE," these settings will be ignored.
- * When the Structure Type parameter has a setting of Type "2"–"10," the outputs of tones 1 and 2 will be combined with tone 2, and the outputs of tones 3 and 4 will be combined with tone 4. For this reason, tone 1 will follow the settings of tone 2, and tone 3 will follow the settings of tone 4 (p. 101).
- * If you've set Tone Out Assign to "MFX," set the MFX Output Assign parameter to specify the output destination of the sound that has passed through the multi-effects.
- * Sounds are output to chorus and reverb in mono at all times.
- * The output destination of the signal after passing through the chorus is set with the Chorus Output Select.

Tone Out Level

Set the level of the signal that is sent to the output destination specified by Tone Output Assign.

Value: 0–127

Tone Chorus Send (Send Level (Output=MFX))

Specifies the level of the signal sent to the chorus for each tone if the tone is sent through MFX.

Value: 0–127

Tone Reverb Send (Send Level (Output=MFX))

Specifies the level of the signal sent to the reverb for each tone if the tone is sent through MFX.

Value: 0–127

Tone Chorus Send (Send Level (Output=non MFX))

Sets the level of the signal sent to chorus for each tone if the tone is not sent through MFX.

Value: 0–127

Tone Reverb Send (Send Level (Output=non MFX))

Sets the level of the signal sent to reverb for each tone if the tone is not sent through MFX.

Value: 0–127

Modulating Sounds (LFO1/2/Step LFO)

MEMO

An LFO (Low Frequency Oscillator) causes change over a cycle in a sound. Each tone has two LFOs (LFO1/LFO2), and these can be used to cyclically change the pitch, cutoff frequency and volume to create modulation-type effects such as vibrato, wah and tremolo. Both LFOs have the same parameters so only one explanation is needed.

Patch LFO 1/2

Waveform (LFO1/LFO2 Waveform)

Selects the waveform of the LFO.

Value

- SIN:** Sine wave
- TRI:** Triangle wave
- SAW-U:** Sawtooth wave
- SAW-D:** Sawtooth wave (negative polarity)
- SQR:** Square wave
- RND:** Random wave
- BND-U:** Once the attack of the waveform output by the LFO is allowed to develop in standard fashion, the waveform then continues without further change.
- BND-D:** Once the decay of the waveform output by the LFO is allowed to develop in standard fashion, the waveform then continues without further change.
- TRP:** Trapezoidal wave
- S&H:** Sample & Hold wave (one time per cycle, LFO value is changed)
- CHAOS:** Chaos wave
- VSIN:** Modified sine wave. The amplitude of the sine wave is randomly varied once each cycle of the waveform.
- STEP:** A waveform generated by the data specified in LFO Step 1–16. This produces a fixed pattern of stepwise change, like that created by a step modulator.

NOTE

If you set this to “BND-U” or “BND-D,” you must turn the Key Trigger parameter to “ON.” If this is “OFF,” it will have no effect.

LFO Rate (LFO1/LFO2 Rate) ★

Adjusts the modulation rate, or speed, of the LFO.

Value: 0–127, Note

LFO Rate sets the beat length for the synchronized tempo is synchronized with the tempo set in an external MIDI sequencer.

(Example)

For a tempo of 120 (120 quarter notes occur in 1 minute (60 seconds))

Setting	LFO Rate
♩ (half note)	1 second (60 / 60 = 1 (second))
♩ (quarter note)	0.5 seconds (60 / 120 = 0.5 (seconds))
♩ (eighth note)	0.25 seconds (60 / 240 = 0.25 (seconds))

NOTE

This setting will be ignored if the Waveform parameter is set to “CHAOS.”

Rate Detune (LFO1/LFO2 Rate Detune)

LFO Rate Detune makes subtle changes in the LFO cycle rate (Rate parameter) each time a key is pressed. Higher settings will cause greater change. This parameter is invalid when Rate is set to “note.”

Value: 0–127

Offset (LFO1/LFO2 Offset)

Raises or lowers the LFO waveform relative to the central value (pitch or cutoff frequency). Positive (+) settings will move the waveform so that modulation will occur from the central value upward. Negative (-) settings will move the waveform so that modulation will occur from the central value downward.

Value: -100, -50, 0, +50, +100

Delay Time (LFO1/LFO2 Delay Time)

Delay Time (LFO Delay Time) specifies the time elapsed before the LFO effect is applied (the effect continues) after the key is pressed (or released).

Value: 0–127

cf.

After referring to **How to Apply the LFO** (p. 119), change the setting until the desired effect is achieved.

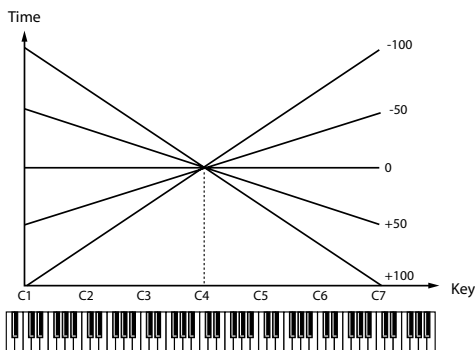
TIP

When using violin, wind, or certain other instrument sounds in a performance, rather than having vibrato added immediately after the sounds are played, it can be effective to add the vibrato after the note is drawn out somewhat. If you set the Delay Time in conjunction with the Pitch Depth parameter and Rate parameter, the vibrato will be applied automatically following a certain interval after the key is pressed. This effect is called **Delay Vibrato**.

Delay Time KF (LFO1/LFO2 Delay Time Keyfollow)

Adjusts the value for the Delay Time parameter depending on the key position, relative to the C4 key (center C). To decrease the time that elapses before the LFO effect is applied (the effect is continuous) with each higher key that is pressed in the upper registers, select a positive value; to increase the elapsed time, select a negative value. Larger settings will produce greater change. If you do not want the elapsed time before the LFO effect is applied (the effect is continuous) to change according to the key pressed, set this to "0."

Value: -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100



Fade Mode (LFO1/LFO2 Fade Mode)

Specifies how the LFO will be applied.

Value: ON-IN, ON-OUT, OFF-IN, OFF-OUT

cf.

After referring to **How to Apply the LFO** (p. 119), change the setting until the desired effect is achieved.

Fade Time (LFO1/LFO2 Fade Time)

Specifies the time over which the LFO amplitude will reach the maximum (minimum).

Value: 0–127

cf.

After referring to **How to Apply the LFO** (p. 119), change the setting until the desired effect is achieved.

Key Trigger (LFO1/LFO2 Key Trigger)

This specifies whether the LFO cycle will be synchronized to begin when the key is pressed (ON) or not (OFF).

Value: OFF, ON

Pitch Depth (LFO1/LFO2 Pitch Depth) ★

Specifies how deeply the LFO will affect pitch.

Value: -63– +63

TVF Depth (LFO1/LFO2 TVF Depth) ★

Specifies how deeply the LFO will affect the cutoff frequency.

Value: -63– +63

TVA Depth (LFO1/LFO2 TVA Depth) ★

Specifies how deeply the LFO will affect the volume.

Value: -63– +63

Pan Depth (LFO1/LFO2 Pan Depth) ★

Specifies how deeply the LFO will affect the pan.

Value: -63- +63

TIP

Positive (+) and negative (-) settings for the Depth parameter result in differing kinds of change in pitch and volume. For example, if you set the Depth parameter to a positive (+) value for one tone, and set another tone to the same numerical value, but make it negative (-), the modulation phase for the two tones will be the reverse of each other. This allows you to shift back and forth between two different tones, or combine it with the Pan setting to cyclically change the location of the sound image.

NOTE

When the Structure parameter is set to any value from "2" through "10," the output of tones 1 and 2 will be combined into tone 2, and the output of tones 3 and 4 will be combined into tone 4. This applies to the Pan Depth parameter settings. For this reason, tone 1 will follow the settings of tone 2, and tone 3 will follow the settings of tone 4 (p. 101).

Patch Step LFO

Step Type (LFO Step Type)

When generating an LFO waveform from the data specified in LFO Step 1–16, specify whether the level will change abruptly at each step or will be connected linearly.

Value: TYPE1 (stair-step change), TYPE2 (linear change)

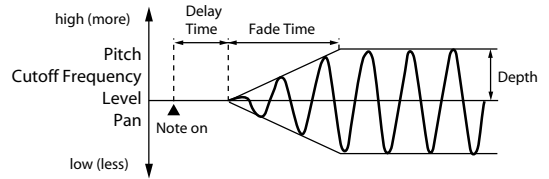
Step 1–16 (LFO Step 1–16)

Specifies the data for the Step LFO. If the LFO Pitch Depth is +63, each +1 unit of the step data corresponds to a pitch of +50 cents.

Value: -36- +36

How to Apply the LFO

● Apply the LFO gradually after the key is pressed

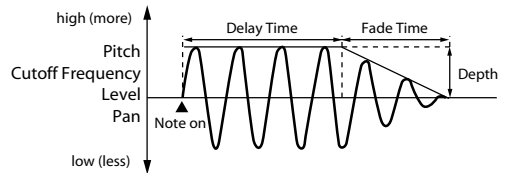


Fade Mode: ON-IN

Delay Time: The time from when the keyboard is played until the LFO begins to be applied.

Fade Time: The time over which the LFO amplitude will reach the maximum after the Delay Time has elapsed.

● Apply the LFO immediately when the key is pressed, and then gradually begin to decrease the effect

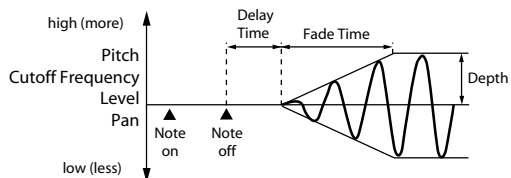


Fade Mode: ON-OUT

Delay Time: The time that the LFO will continue after the keyboard is played.

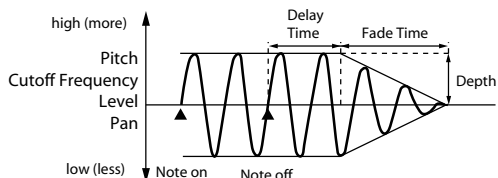
Fade Time: The time over which the LFO amplitude will reach the minimum after the Delay Time has elapsed.

● **Apply the LFO gradually after the key is released**



- Fade Mode:** OFF-IN
- Delay Time:** The time from when the keyboard is released until the LFO begins to be applied.
- Fade Time:** The time over which the LFO amplitude will reach the maximum after the Delay Time has elapsed.

● **Apply the LFO from when the key is pressed until it is released, and gradually begin to decrease the effect when the key is released**



- Fade Mode:** OFF-OUT
- Delay Time:** The time that the LFO will continue after the keyboard is released.
- Fade Time:** The time over which the LFO amplitude will reach the minimum after the Delay Time has elapsed.

Controller-related settings (CTRL)

Patch Ctrl

Tone Env Mode (Tone Envelope Mode)

When a loop waveform is selected, the sound will normally continue as long as the key is pressed. If you want the sound to decay naturally even if the key remains pressed, set this to "NO SUS."

Value: NO SUS, SUST

NOTE

If a one-shot type Wave is selected, it will not sustain even if this parameter is set to "SUST."

Tone Rx Bender (Tone Receive Pitch Bend Switch)

For each tone, specify whether MIDI Pitch Bend messages will be received (ON), or not (OFF).

Value: OFF, ON

Tone Rx Expression (Tone Receive Expression Switch)

For each tone, specify whether MIDI Expression messages will be received (ON), or not (OFF).

Value: OFF, ON

Tone Rx Hold-1 (Tone Receive Hold Switch)

For each tone, specify whether MIDI Hold-1 messages will be received (ON), or not (OFF).

Value: OFF, ON

NOTE

If "NO SUS" is selected for Env Mode parameter, this setting will have no effect.

Tone Rx Pan Mode (Tone Receive Pan Mode)

For each tone, specify how pan messages will be received.

Value

CONT: Whenever Pan messages are received, the stereo position of the tone will be changed.

K-ON: The pan of the tone will be changed only when the next note is played. If a pan message is received while a note is sounding, the panning will not change until the next key is pressed.

NOTE

The channels cannot be set so as not to receive Pan messages.

Tone Redamper Sw (Tone Redamper Switch)

You can specify, on an individual tone basis, whether or not the sound will be held when a Hold 1 message is received after a key is released, but before the sound has decayed to silence. If you want to sustain the sound, set this "ON." When using this function, also set the Rx Hold-1 parameter "ON." This function is effective for piano sounds.

Value: OFF, ON

Matrix Control Settings (Matrix Ctrl1–4)

Matrix Control

Ordinarily, if you wanted to change tone parameters using an external MIDI device, you would need to send System Exclusive messages—MIDI messages designed exclusively for the Fantom VS. However, System Exclusive messages tend to be complicated, and the amount of data that needs to be transmitted can get quite large.

For that reason, a number of the more typical of the Fantom VS's tone parameters have been designed so they accept the use of Control Change (or other) MIDI messages for the purpose of making changes in their values. This provides you with a variety of means of changing the way patches are played. For example, you can use the Pitch Bend lever to change the LFO cycle rate, or use the keyboard's touch to open and close a filter.

The function which allows you use MIDI messages to make these changes in realtime to the tone parameters is called the **Matrix Control**. Up to four Matrix Controls can be used in a single patch.

To use the Matrix Control, specify which MIDI message (Source parameter) will be used to control which parameter (Destination parameter), and how greatly (Sns parameter), and the tone to which the effect is applied (Tone parameter).

Patch Mtrx Control 1–4 Source (Patch Matrix Control 1–4)

Control 1–4 Source (Matrix Control Source 1–4)

Sets the MIDI message used to change the tone parameter with the Matrix Control.

Value

- OFF:** Matrix control will not be used.
- CC01–31, 33–95:** Controller numbers 1–31, 33–95
- PITCH BEND:** Pitch Bend
- AFTERTOUCHE:** Aftersustain
- SYS CTRL1–SYS CTRL4:** MIDI messages used as common matrix controls.
- VELOCITY:** Velocity (pressure you press a key with)
- KEYFOLLOW:** Keyfollow (keyboard position with C4 as 0)
- TEMPO:** The tempo of an external MIDI sequencer.
- LFO1:** LFO 1
- LFO2:** LFO 2
- PITCH ENV:** Pitch envelope
- TVF ENV:** TVF envelope
- TVA ENV:** TVA envelope

MEMO Velocity and Keyfollow correspond to Note messages.

TIP Although there are no MIDI messages for LFO 1 through TVA Envelope, they can be used as Matrix Control. In this case, you can change the tone settings in realtime by playing patches.

- If you want to use common controllers for the entire Fantom VS, select “SYS CTRL1”–“SYS CTRL4.” MIDI messages used as System Control 1–4 are set with the System Ctrl 1–4 Source parameters (p. 152).

NOTE There are parameters that determine whether or not Pitch Bend, Controller Number 11 (Expression) and Controller Number 64 (Hold 1) are received (p. 120). When these settings are “ON,” and the MIDI messages are received, then when any change is made in the settings of the desired parameter, the Pitch Bend, Expression, and Hold 1 settings also change simultaneously. If you want to change the targeted parameters only, then set these to “OFF.”

- There are parameters that let you specify whether specific MIDI messages will be received for each channel in a performance (p. 141). When a patch with Matrix Control settings is assigned to a part, confirm that any MIDI messages used for the Matrix Control will be received. If the Fantom VS is set up such that reception of MIDI messages is disabled, then the Matrix Control will not function.

CTRL Destination 1–4 (Matrix Control Destination 1–4)

Matrix Control Destination selects the tone parameter that is to be controlled when using the Matrix Control. The following parameters can be controlled. When not controlling parameters with the Matrix Control, set this to “OFF.” Up to four parameters can be specified for each Matrix Control, and controlled simultaneously.

MEMO In this manual, Parameters that can be controlled using the Matrix Control are marked with a “★.”

● Opening and Closing the Filter

- CUTOFF:** Changes the cutoff frequency.
- RESONANCE:** Emphasizes the overtones in the region of the cutoff frequency, adding character to the sound.

● Changing the Volume, Pan, and Pitch

- LEVEL:** Changes the volume level.
- PAN:** Changes the pan.
- PITCH:** Changes the pitch.

● Changing How the Effects Are Applied

- OUTPUT LEVEL:** Changes the volume of output levels.
- CHORUS SEND:** Changes the amount of chorus.
- REVERB SEND:** Changes the amount of reverb.

● Applying LFO to Modulate Sounds

- LFO1/LFO2 PCH DEPTH:** Changes the vibrato depth.
- LFO1/LFO2 TVF DEPTH:** Changes the wah depth.
- LFO1/LFO2 TVA DEPTH:** Changes the tremolo depth.
- LFO1/LFO2 PAN DEPTH:** Changes the effect that the LFO will have on pan.
- LFO1/LFO2 RATE:** Changes the LFO cycle rate. Changes the speed of the LFO cycles. The speed will not change if LFO Rate is set to "note."

● Changing the Pitch Envelope

- PIT ENV A-TIME:** Changes the Env Time 1 parameter of the pitch envelope.
- PIT ENV D-TIME:** Changes the Env Time 2 and Env Time 3 parameters of the pitch envelope.
- PIT ENV R-TIME:** Changes the Env Time 4 parameter of the pitch envelope.

● Changing the TVF Envelope

- TVF ENV A-TIME:** Changes the Env Time 1 parameter of the TVF envelope.
- TVF ENV D-TIME:** Changes the Env Time 2 and Env Time 3 parameters of the TVF envelope.
- TVF ENV R-TIME:** Changes the Env Time 4 parameter of the TVF envelope.

● Changing the TVA Envelope

- TVA ENV A-TIME:** Changes the Env Time 1 parameter of the TVA envelope.
- TVA ENV D-TIME:** Changes the Env Time 2 and Env Time 3 parameters of the TVA envelope.
- TVA ENV R-TIME:** Changes the Env Time 4 parameter of the TVA envelope.

● Splitting Tones That Are Played

TMT



If the Matrix Control is used to split tones, set the TMT Vel Control parameter to "OFF," and the TMT Control Switch parameter to "ON" (p. 104, p. 105).

- If the Matrix Control is used to split tones, we recommend setting the Matrix Control Sens to "+63." Selecting a lower value may prevent switching of the tones. Furthermore, if you want to reverse the effect, set the value to "-63."
- If you want to use matrix control to switch smoothly between tones, use the Velo Fade Lower and Velo Fade Upper parameters (p. 104). The higher the values set, the smoother the switch is between the tones.

- **Changing the Depth of Frequency Modulation for FXM**

FXM DEPTH

- **Changing Specific Multi-Effects Parameters**

MFX CTRL1–4: Change the parameter that was specified by MFX Control 1–4 Assign parameter.

NOTE

If you have not made the necessary settings for using the multi-effect, the multi-effect will not be applied even if you attempt to control it as a Matrix Control destination.

- **If you're not using Matrix Control**

OFF: Matrix Control will not be used.

CTRL Sens 1–4 (Matrix Control Sens 1–4)

Sets the amount of the Matrix Control's effect that is applied. If you wish to modify the selected parameter in a positive (+) direction – i.e., a higher value, toward the right, or faster etc. – from its current setting, select a positive (+) value. If you wish to modify the selected parameter in a negative (-) direction – i.e., a lower value, toward the left, or slower etc. – from its current setting, select a negative (-) value. For either positive or negative settings, greater absolute values will allow greater amounts of change. Set this to "0" if you don't want to apply the effect.

Value: -63– +63

CTRL Tone 1–4 (Tone Control Switch 1–4)

Matrix Control Tone selects the tone to which the effect is applied when using the Matrix Control.

Value

OFF: The effect will not be applied.

ON: The effect will be applied.

REVS: The effect will be applied in reverse.

Creating a Rhythm Set

With the Fantom VS, you have total control over a wide variety of settings. Each item that can be set is known as a **parameter**. This chapter explains the procedures used in creating rhythm sets, and the functions of the rhythm set parameters.

Functions of Rhythm Set Parameters

This section explains the functions the different rhythm set parameters have, as well as the composition of these parameters.

Making Settings Common to the Entire Rhythm Set (GENERAL)

NOTE

Rhythm Level applies to the entire rhythm set; the other parameters are set individually for each rhythm tone.

Rhythm General

Rhythm Level (Rhythm Set Level)

Sets the volume of the rhythm set.

Value: 0–127

TIP

The volume levels of the tones from which the rhythm set is composed is set with the Tone Level parameter (p. 133). The volume levels of the Waves from which the rhythm tone is composed is set with the Wave Level parameter (p. 128).

Rhythm Tone Name

You can assign a name of up to 12 characters to the rhythm tone.

Value: space, A-Z, a-z, 0-9, ! " # \$ % & ' () * + , - . / : ; < = > ?
@[\] ^ _ ` { | }

Assign Type

Assign Type sets the way sounds are played when the same key is pressed a number of times.

Value

MULTI: Layer the sound of the same keys. Even with continuous sounds where the sound plays for an extended time, such as with crash cymbals, the sounds are layered, without previously played sounds being eliminated.

SINGLE: Only one sound can be played at a time when the same key is pressed. With continuous sounds where the sound plays for an extended time, the previous sound is stopped when the following sound is played.

Mute Group

On an actual acoustic drum set, an open hi-hat and a closed hi-hat sound can never occur simultaneously. To reproduce the reality of this situation, you can set up a Mute Group.

The Mute Group function allows you to designate two or more rhythm tones that are not allowed to sound simultaneously. Up to 31 Mute Groups can be used. rhythm tones that are not belong to any such group should be set to "OFF."

Value: OFF, 1–31

Tone Env Mode (Rhythm Tone Envelope Mode)

When a loop waveform is selected, the sound will normally continue as long as the key is pressed. If you want the sound to decay naturally even if the key remains pressed, set this to "NO SUS."

Value: NO-SUS, SUSTAIN

NOTE

If the One Shot Mode (p. 126) is ON, it will not sustain even if this parameter is set to "SUST."

Tone Pitch Bend Range (Rhythm Tone Pitch Bend Range)

Specifies the amount of pitch change in semitones (4 octaves) that will occur when the Pitch Bend Lever is moved. The amount of change when the lever is tilted is set to the same value for both left and right sides.

Value: 0–48

Tone Receive Expression (Rhythm Tone Receive Expression Switch)

For each rhythm tone, specify whether MIDI Expression messages will be received (ON), or not (OFF).

Value: OFF, ON

Tone Receive Hold-1 (Rhythm Tone Receive Hold-1 Switch)

For each rhythm tone, specify whether MIDI Hold-1 messages will be received (ON), or not (OFF).

Value: OFF, ON

NOTE

If “NO SUS” is selected for Env Mode parameter (p. 125), this setting will have no effect.

Tone Receive Pan Mode (Rhythm Tone Receive Pan Mode)

For each rhythm tone, specify how pan messages will be received.

Value

CONTINUOUS: Whenever Pan messages are received, the stereo position of the tone will be changed.

KEY-ON: The pan of the tone will be changed only when the next note is played. If a pan message is received while a note is sounding, the panning will not change until the next key is pressed.

NOTE

The channels cannot be set so as not to receive Pan messages.

One Shot Mode

The sound will play back until the end of the waveform (or the end of the envelope, whichever comes first). The result will be the same as when the envelope’s Tone Env Mode parameter (p. 125) is set to NO-SUS.

Value: OFF, ON

Relative Level

Corrects for the volume of the rhythm tone.

This parameter is set by the key-based controller system exclusive message. Normally, you should leave it set to 0.

Value: -64–+63

NOTE

If the rhythm tone level is set to 127, the volume will not increase beyond that point.

Modifying Waveforms (WG)

MEMO

With rhythm tones, sounds are created by combining up to four Waves (eight for stereo).

Tips on Creating a Rhythm Tone

The Waves for the bass drum, snare, hi-hat, toms, and other percussion instruments are each assigned to one rhythm tone. When adding 3D effects to the sound, make the Pan settings for each rhythm tone individually.

Rhythm Wave

Wave No. L (Mono) (Wave Number L (Mono)) Wave No. R (Wave Number R)

This selects the Waves comprising the rhythm tone. Along with the Wave number, the Wave name will appear at the lower part of the display.

When in monaural mode, only the left side (L) is specified. When in stereo, the right side (R) is also specified.

Value: ---, 1–1240

* When using a multisample in stereo, you must specify the same number for L and R.

Wave Gain

Sets the gain (amplification) of the waveform. The value changes in 6 dB (decibel) steps—an increase of 6 dB doubles the waveform's gain.

Value: -6, 0, +6, +12

FXM Switch

This sets whether FXM will be used (ON) or not (OFF).

Value: OFF, ON

FXM

FXM (Frequency Cross Modulation) uses a specified waveform to apply frequency modulation to the currently selected waveform, creating complex overtones. This is useful for creating dramatic sounds or sound effects.

FXM Color

Specifies how FXM will perform frequency modulation. Higher settings result in a grainier sound, while lower settings result in a more metallic sound.

Value: 1–4

FXM Depth

Specifies the depth of the modulation produced by FXM.

Value: 0–16

Wave Coarse Tune

Adjusts the pitch of the waveform's sound up or down in semitone steps (+/-4 octaves).

Value: -48– +48

TIP

The Coarse Tune of the entire rhythm tone is set by the Tone Coarse parameter (p. 129).

Wave Fine Tune

Adjusts the pitch of the waveform's sound up or down in 1-cent steps (+/-50 cents).

Value: -50– +50

MEMO

One cent is 1/100th of a semitone.

TIP

The Fine Tune of the entire rhythm tone is set by the Tone Fine Tune parameter (p. 129).

Wave Level

You can set the volume of the waveform.

Value: 0–127

TIP

The volume level of each rhythm tone is set with the Tone Level parameter; the volume levels of the entire rhythm set is set with the Rhythm Level parameter (p. 125).

Wave Pan

This specifies the pan of the waveform. “L64” is far left, “0” is center, and “63R” is far right.

Value: L63–0–63R

Wave Rnd Pan Sw (Wave Random Pan Switch)

Use this setting to cause the waveform’s panning to change randomly each time a key is pressed (ON) or not (OFF).

Value: OFF, ON

* The range of the panning change is set by the Rnd Pan Depth parameter (p. 134).

Wave Alter Pan Sw (Wave Alternate Pan Switch)

This setting causes panning of the waveform to be alternated between left and right each time a key is pressed. Set Alternate Pan Switch to “ON” to pan the Wave according to the Alter Pan Depth parameter (p. 134) settings, or to “REV” when you want the panning reversed. If you do not want the panning to change each time a key is pressed, set this to “OFF.”

Value: OFF, ON, REV

Changing How a Rhythm Tone is Sounded (WMT)

The WMT (Wave Mix Table) uses key velocity to control the four waveforms assigned to the rhythm tone.

Rhythm WMT

WMT Velocity Control (Velocity Control Switch)

WMT Velocity Control determines whether a different rhythm tone is played (ON) or not (OFF) depending on the force with which the key is played (velocity).

When set to “RND,” the rhythm set’s constituent rhythm tones will sound randomly, regardless of any Velocity messages.

Value: OFF, ON, RANDOM

Velo Fade Lower (Velocity Fade Width Lower)

This determines what will happen to the tone’s level when the tone is played at a velocity lower than its specified velocity range. Higher settings produce a more gradual change in volume. If you want notes played outside the specified key velocity range to not be sounded at all, set this to “0.”

Value: 0–127

Velo Range Lower (Velocity Range Lower)

This sets the lowest velocity at which the waveform will sound. Make these settings when you want different waveforms to sound in response to notes played at different strengths.

Value: 1–UPPER

Velo Range Upper (Velocity Range Upper)

This sets the highest velocity at which the waveform will sound. Make these settings when you want different waveforms to sound in response to notes played at different strengths.

Value: LOWER-127

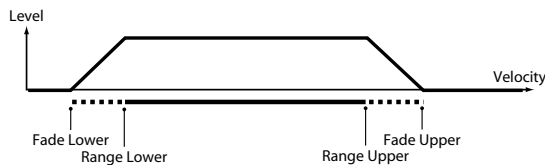
NOTE

If you attempt to set the Lower velocity limit above the Upper, or the Upper below the Lower, the other value will automatically be adjusted to the same setting.

Velo Fade Upper (Velocity Fade Width Upper)

This determines what will happen to the tone's level when the tone is played at a velocity greater than its specified velocity range. Higher settings produce a more gradual change in volume. If you want notes played outside the specified key velocity range to not be sounded at all, set this to "0."

Value: 0-127



Modifying Pitch (PCH/PCH Env)

Rhythm Pitch

Tone Coarse Tune (Rhythm Tone Coarse Tune)

Selects the pitch at which a rhythm tone sounds.

Value: C-1- G9

TIP

Set the coarse tuning for Waves comprising the rhythm tones with the Wave Coarse Tune parameter (p. 127).

Tone Fine Tune (Rhythm Tone Fine Tune)

Adjusts the pitch of the rhythm tone's sound up or down in 1-cent steps (+/-50 cents).

Value: -50- +50

MEMO

One cent is 1/100th of a semitone.

TIP

Set the fine tuning for Waves comprising the rhythm tones with the Wave Fine Tune parameter (p. 127).

Tone Random Pitch Depth

This specifies the width of random pitch deviation that will occur each time a key is pressed. If you do not want the pitch to change randomly, set this to "0." These values are in units of cents (1/100th of a semitone).

Value: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200

Rhythm Pitch Env

P-Env Depth (Envelope Depth)

Adjusts the effect of the Pitch Envelope. Higher settings will cause the pitch envelope to produce greater change. Negative (-) settings will invert the shape of the envelope.

Value: -12- +12

P-Env V-Sens (Pitch Envelope Velocity Sensitivity)

Keyboard playing dynamics can be used to control the depth of the pitch envelope. If you want the pitch envelope to have more effect for strongly played notes, set this parameter to a positive (+) value. If you want the pitch envelope to have less effect for strongly played notes, set this to a negative (-) value.

Value: -63- +63

P-Env T1 V-Sens (Pitch Envelope Time 1 Velocity Sensitivity)

This allows keyboard dynamics to affect the Time 1 of the Pitch envelope. If you want Time 1 to be speeded up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Value: -63- +63

P-Env T4 V-Sens (Pitch Envelope Time 4 Velocity Sensitivity)

Use this parameter when you want key release speed to affect the Time 4 value of the pitch envelope. If you want Time 4 to be speeded up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Value: -63- +63

P-Env Time 1-4 (Pitch Envelope Time 1-4)

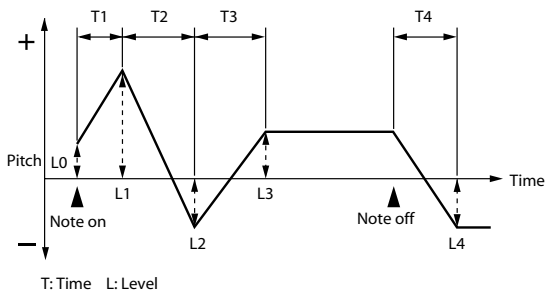
Specify the pitch envelope times (Time 1-Time 4). Higher settings will result in a longer time until the next pitch is reached. (For example, Time 2 is the time over which the pitch changes from Level 1 to Level 2.)

Value: 0-127

P-Env Level 0-4 (Pitch Envelope Level 0-4)

Specify the pitch envelope levels (Level 0-Level 4). It determines how much the pitch changes from the reference pitch (the value set with Coarse Tune or Fine Tune on the Pitch screen) at each point. Positive (+) settings will cause the pitch to be higher than the standard pitch, and negative (-) settings will cause it to be lower.

Value: -63- +63



Modifying the Brightness of a Sound with a Filter (TVF/TVF Env)

Rhythm TVF

Filter Type

Selects the type of filter. A filter cuts or boosts a specific frequency region to change a sound's brightness, thickness, or other qualities.

Value

OFF: No filter is used.

LPF: Low Pass Filter. This reduces the volume of all frequencies above the cutoff frequency (Cutoff Freq) in order to round off, or un-brighten the sound. This is the most common filter used in synthesizers.

BPF: Band Pass Filter. This leaves only the frequencies in the region of the cutoff frequency (Cutoff Frequency), and cuts the rest. This can be useful when creating distinctive sounds.

HPF: High Pass Filter. This cuts the frequencies in the region below the cutoff frequency (Cutoff Frequency). This is suitable for creating percussive sounds emphasizing their higher tones.

PKG: Peaking Filter. This emphasizes the frequencies in the region of the cutoff frequency (Cutoff Frequency). You can use this to create wah-wah effects by employing an LFO to change the cutoff frequency cyclically.

LPF2: Low Pass Filter 2. Although frequency components above the Cutoff frequency (Cutoff Frequency) are cut, the sensitivity of this filter is half that of the LPF. This makes it a comparatively warmer low pass filter. This filter is good for use with simulated instrument sounds such as the acoustic piano.

LPF3: Low Pass Filter 3. Although frequency components above the Cutoff frequency (Cutoff Frequency) are cut, the sensitivity of this filter changes according to the Cutoff frequency. While this filter is also good for use with simulated acoustic instrument sounds, the nuance it exhibits differs from that of the LPF2, even with the same TVF Envelope settings.

Cutoff Frequency

Selects the frequency at which the filter begins to have an effect on the waveform's frequency components.

Value: 0–127

With "LPF/LPF2/LPF3" selected for the Filter Type parameter, lower cutoff frequency settings reduce a tone's upper harmonics for a more rounded, warmer sound. Higher settings make it sound brighter.

If "BPF" is selected, harmonic components will change depending on the TVF Cutoff Frequency setting. This can be useful when creating distinctive sounds.

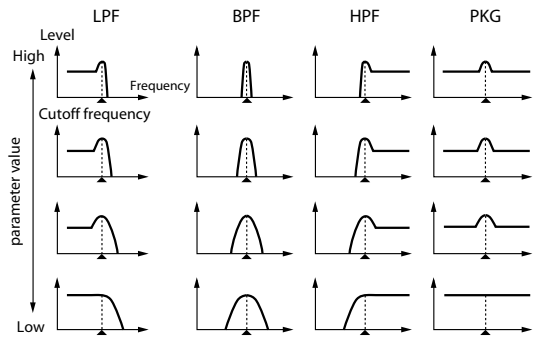
With "HPF" selected, higher Cutoff Frequency settings will reduce lower harmonics to emphasize just the brighter components of the sound.

With "PKG" selected, the harmonics to be emphasized will vary depending on Cutoff Frequency setting.

Resonance

Emphasizes the portion of the sound in the region of the cutoff frequency, adding character to the sound. Excessively high settings can produce oscillation, causing the sound to distort.

Value: 0–127



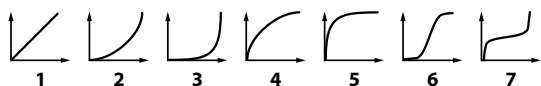
NOTE

If you set "LPF2" or "LPF3," the setting for the Resonance parameter will be ignored.

Cutoff V-Curve (Cutoff Frequency Velocity Curve)

Selects one of the following seven curves that determine how keyboard playing dynamics (velocity) influence the cutoff frequency. Set this to "FIXED" if you don't want the Cutoff frequency to be affected by the keyboard velocity.

Value: FIXED, 1-7



Cutoff V-Sens (Cutoff Velocity Sensitivity)

Use this parameter when changing the cutoff frequency to be applied as a result of changes in playing velocity. If you want strongly played notes to raise the cutoff frequency, set this parameter to positive (+) settings. If you want strongly played notes to lower the cutoff frequency, use negative (-) settings.

Value: -63- +63

Resonance V-Sens (Resonance Velocity Sensitivity)

This allows keyboard velocity to modify the amount of Resonance. If you want strongly played notes to have a greater Resonance effect, set this parameter to positive (+) settings. If you want strongly played notes to have less Resonance, use negative (-) settings.

Value: -63- +63

Rhythm TVF Env

F-Env Depth (TVF Envelope Depth)

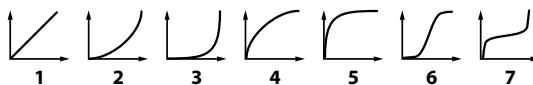
Specifies the depth of the TVF envelope. Higher settings will cause the TVF envelope to produce greater change. Negative (-) settings will invert the shape of the envelope.

Value: -63- +63

F-Env V-Curve (TVF Envelope Velocity Curve)

Selects one of the following 7 curves that will determine how keyboard playing dynamics will affect the TVF envelope. Set this to "FIXED" if you don't want the TVF Envelope to be affected by the keyboard velocity.

Value: FIX, 1-7



F-Env V-Sens (TVF Envelope Velocity Sensitivity)

Specifies how keyboard playing dynamics will affect the depth of the TVF envelope. Positive (+) settings will cause the TVF envelope to have a greater effect for strongly played notes, and negative (-) settings will cause the effect to be less.

Value: -63- +63

F-Env T1 V-Sens (TVF Envelope Time 1 Velocity Sensitivity)

This allows keyboard dynamics to affect the Time 1 of the TVF envelope. If you want Time 1 to be speeded up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Value: -63- +63

F-Env T4 V-Sens (TVF Envelope Time 4 Velocity Sensitivity)

The parameter to use when you want key release speed to control the Time 4 value of the TVF envelope. If you want Time 4 to be speeded up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Value: -63- +63

F-Env Time 1-4 (TVF Envelope Time 1-4)

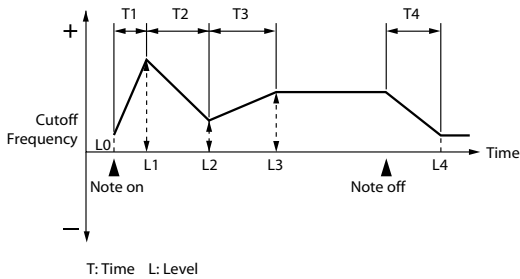
Specify the TVF envelope times (Time 1- Time 4). Higher settings will lengthen the time until the next cutoff frequency level is reached. (For example, Time 2 is the time over which Level 1 will change to Level 2.)

Value: 0-127

F-Env Level 0-4 (TVF Envelope Level 0-4)

Specify the TVF envelope levels (Level 0-Level 4). These settings specify how the cutoff frequency will change at each point, relative to the standard cutoff frequency (the cutoff frequency value specified in the TVF screen).

Value: 0-127



Adjusting the Volume (TVA/TVA Env)

Rhythm TVA

Tone Level (Rhythm Tone level)

Sets the volume of the rhythm tone. Use this parameter to adjust the volume balance between rhythm tones.

Value: 0-127



The volume levels of the Waves from which the rhythm tone is composed is set with the WMT1-4 Wave Level parameter (p. 128).

Level V-Curve (Level Velocity Curve)

You can select from seven curves that determine how keyboard playing strength will affect the volume. If you do not want the volume of the rhythm tone to be affected by the force with which you press the key, select "FIXED."

Value: FIXED, 1-7



Level V-Sens (Level Velocity Sensitivity)

Set this when you want the volume of the rhythm tone to change depending on the force with which you press the keys. Set this to a positive (+) value to have the changes in rhythm tone volume increase the more forcefully the keys are played; to make the tone play more softly as you play harder, set this to a negative (-) value.

Value: -63- +63

Tone Pan (Rhythm Tone Pan)

Sets the pan for the rhythm tone. "L64" is far left, "0" is center, and "63R" is far right.

Value: L64-0-63R



Set the Pan for Waves comprising the rhythm tones with the Wave Pan parameter (p. 128).

Random Pan Depth

Use this parameter when you want the stereo location to change randomly each time you press a key. Higher settings will produce a greater amount of change.

Value: 0–63

NOTE

This will affect only waves whose Wave Rnd Pan Sw parameter (p. 128) is ON.

Alternate Pan Depth

This setting causes panning to be alternated between left and right each time a key is pressed. Higher settings will produce a greater amount of change. “L” or “R” settings will reverse the order in which the pan will alternate between left and right. For example if two rhythm tones are set to “L” and “R” respectively, the panning of the two rhythm tones will alternate each time they are played.

Value: L63–0–63R

NOTE

This will affect only waves whose Wave Alter Pan Sw parameter (p. 128) is ON or REV.

Rhythm TVA Env

A-Env T1 V-Sens (TVA Envelope Time 1 Velocity Sensitivity)

This allows keyboard dynamics to affect the Time 1 of the TVA envelope. If you want Time 1 to be speeded up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Value: -63– +63

A-Env T4 V-Sens (TVA Envelope Time 4 Velocity Sensitivity)

The parameter to use when you want key release speed to control the Time 4 value of the TVA envelope. If you want Time 4 to be speeded up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Value: -63– +63

A-Env Time 1–4 (TVA Envelope Time 1–4)

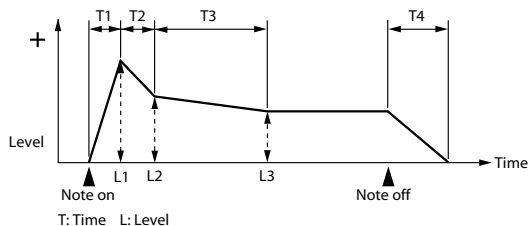
Specify the TVA envelope times (Time 1–Time 4). Higher settings will lengthen the time until the next volume level is reached. (For example, Time 2 is the time over which Level 1 will change to Level 2.)

Value: 0–127

A-Env Level 1–3 (TVA Envelope Level 1–3)

Specify the TVA envelope levels (Level 1–Level 3). These settings specify how the volume will change at each point, relative to the standard volume (the Rhythm Tone Level value specified in the TVA screen).

Value: 0–127



Output Settings

Rhythm Output

Rhythm Out Assign

Specifies for each rhythm set how the direct sound will be output.

Value:

MXF: Output in stereo through multi-effects. You can also apply chorus or reverb to the sound that passes through multi-effects.

L+R: Output in stereo without passing through multi-effects.

L, R: Output in mono without passing through multi-effects.

Tone Out Assign

Specifies how the direct sound of each tone will be output.

Value:

MXF: Output in stereo through multi-effects. You can also apply chorus or reverb to the sound that passes through multi-effects.

L+R: Output in stereo without passing through multi-effects.

L, R: Output in mono without passing through multi-effects.

* If the Rhythm Output Assign is set to anything other than "TONE," these settings will be ignored.

* Chorus and reverb are output in mono at all times.

* The output destination of the signal after passing through the chorus is set with the Chorus Output Select (p. 147).

Tone Out Level

Set the level of the signal that is sent to the output destination specified by Patch/Tone Output Assign.

Value: 0–127

Tone Chorus Send (Send Level (Output=MXF))

Specifies the level of the signal sent to the chorus for each tone if the tone is sent through MFX.

Value: 0–127

Tone Reverb Send (Send Level (Output=MXF))

Specifies the level of the signal sent to the reverb for each tone if the tone is sent through MFX.

Value: 0–127

Tone Chorus Send (Send Level (Output=non MFX))

Sets the level of the signal sent to chorus for each tone if the tone is not sent through MFX.

Value: 0–127

Tone Reverb Send (Send Level (Output=non MFX))

Sets the level of the signal sent to reverb for each tone if the tone is not sent through MFX.

Value: 0–127

Creating a Performance

With the Fantom VS, you have total control over a wide variety of settings. Each item that can be set is known as a **parameter**. This chapter explains the procedures used in creating Performances, and the functions of the Performance parameters.

Adjusting the Parameters of Each Part

Parameter List

Patch Group

Selects the group to which the desired patch or rhythm set belongs.

Value

PRA-I: Preset A-I

GM: GM (GM2)

Patch Number

Selects the desired patch or rhythm set by its number.

Value: 001–

Level

Adjust the volume of each part. This setting's main purpose is to adjust the volume balance between parts.

Value: 0–127

Pan

Adjust the pan of each part. "L64" is far left, "0" is center, and "63R" is far right.

Value: L64–0–63R

Solo Switch

Select one part whose sound you want to play. Turn it "SOLO" to the part that you want to solo. Parts other than the part you select here will not sound.

Value: –, SOLO

Mute Switch

Mutes (MUTE) or un-mutes (OFF) each part.

Value: OFF, MUTE

MEMO

The Mute Switch parameter does not turn the part off, but sets the volume to minimum so that no sound is heard. Therefore, MIDI messages are still received.

Octave Shift

Adjusts the pitch of the part's sound up or down in units of an octave (+/-3 octaves).

Value: -3– +3

NOTE

Note that when a rhythm set is assigned to a part, you cannot modify the Octave Shift parameter.

Coarse Tune

Adjusts the pitch of the part's sound up or down in semitone steps (+/-4 octaves).

Value: -48– +48

Coarse Tune and Octave Shift

The Coarse Tune and Fine Tune parameters, along with the Octave Shift parameter, can all be seen as doing the same thing to the sound, i.e., changing the pitch of the sound. For example, if C4 (Middle C) is played with the Coarse Tune parameter set to "+12," the note produced is C5 (one octave above C4). For example, if C4 (Middle C) is played with the Octave Shift parameter set to "+1," the note produced is C5 (one octave above C4).

However, internally these function very differently. When the Coarse Tune parameter is set to "+12," the pitch itself is raised one octave. On the other hand, when the Octave Shift parameter is set to "+1," it is the same as pressing the keys one octave up. In other words, use the Coarse Tune parameter when changing the pitch, and the Octave Shift parameter when you want to shift the entire keyboard, for example, when the number of keys is insufficient.

Fine Tune

Adjusts the pitch of the part's sound up or down in 1-cent steps (+/-50 cents).

Value: -50– +50

MEMO

One cent is 1/100th of a semitone.

Output Assign

Specifies for each part how the direct sound will be output.

Value

MFX: Output in stereo through multi-effects. You can also apply chorus or reverb to the sound that passes through multi-effects.

L+R: Output in stereo without passing through multi-effects.

L, R: Output in mono without passing through multi-effects.

PAT: The part's output destination is determined by the settings of the patch or rhythm set assigned to the part.

TIP

If you've set Tone Out Assign to "MFX," set the MFX Output Assign parameter to specify the output destination of the sound that has passed through the multi-effects.

- Chorus and reverb are output in mono at all times.
- The output destination of the signal after passing through the chorus is set with the Chorus Output Select.

Output MFX Select (Part Output Multi-Effects Select)

Of the three types of multi-effects that can be used simultaneously, specify which multi-effects will be used.

Value: 1–3 (MFX-1–MFX-3)

Output Level (Part Output Level)

Set the level of the signal that is sent to the output destination specified by Part Output Assign.

Value: 0–127

Chorus Send Level (Part Chorus Send Level)

Sets the level of the signal sent to chorus for each part.

Value: 0–127

Reverb Send Level (Part Reverb Send Level)

Sets the level of the signal sent to reverb for each part.

Value: 0–127

Cutoff Offset

Adjusts the cutoff frequency for the patch or rhythm set assigned to a part.

Value: -64– +63

NOTE

Patches also have a Cutoff Offset setting (p. 98). The final Cutoff frequency value is the sum of the tone Cutoff Frequency value and the patch and part Cutoff Offset values. If the tone's cutoff frequency is already set to "127" (maximum), there will be no change produced by setting the Cutoff Offset to a positive value.

Resonance Offset

Adjusts the Resonance for the patch or rhythm set assigned to a part.

Value: -64– +63

NOTE

Patches also have a Resonance Offset setting (p. 98). The final Resonance value is the sum of the tone Resonance value and the patch and part Resonance Offset values. If the tone's resonance is already set to "127" (maximum), there will be no change produced by setting the resonance offset to a positive value.

Attack Time Offset

Adjusts the TVA/TVF Envelope Attack Time for the patch or rhythm set assigned to a part.

Value: -64– +63

NOTE

Patches also contain the Attack Time Offset setting (p. 98). The final TVA Envelope attack time value is therefore the sum of the tone's TVA Envelope Time 1 setting, the patch's Attack Time Offset, and the part's Attack Time Offset. If the tone's Time 1 parameter is already set to "127" (maximum), there will be no change produced by setting the Attack Time Offset to a positive value. The same applies to the TVF envelope.

Release Time Offset

Adjusts the TVA/TVF Envelope Release Time for the patch or rhythm set assigned to a part.

Value: -64– +63

NOTE

Patches also contain a Release Time Offset setting (p. 99). The final TVA Envelope release time value is therefore the sum of the tone's TVA Envelope Time 4 setting, the patch's Release Time Offset, and the part's Release Time Offset. If the tone's Time 4 parameter is set to "127" (maximum), there will be no change in the Release Time Offset, even when this is set to a positive value. The same applies to the TVF envelope.

Decay Time Offset

Adjusts the TVA/TVF Envelope Decay Time for the patch or rhythm set assigned to a part.

Value: -64– +63

Mono/Poly

Set this parameter to “MONO” when the patch assigned to the part is to be played monophonically, or to “POLY” when the patch is to be played polyphonically. If you want to use the Mono/Poly setting of the patch assigned to the part (p. 99), set this to “PAT.”

Value: MONO, POLY, PAT

NOTE

This setting is ignored for parts to which a rhythm set is assigned.

Legato Switch

You can add legato when performing monophonically. The term “legato” refers to a playing style in which notes are smoothly connected to create a flowing feel. This creates a smooth transition between notes, which is effective when you wish to simulate the hammering-on and pulling-off techniques used by a guitarist.

Turn this parameter “ON” when you want to use the Legato feature and “OFF” when you don’t. If you want to use the Legato Switch setting of the patch assigned to the part (p. 99), set this to “PAT.”

Value: OFF, ON, PAT

NOTE

This setting is ignored for parts to which a rhythm set is assigned.

Portamento Switch

Specify whether portamento will be applied. Turn this parameter “ON” when you want to apply Portamento and “OFF” when you don’t. If you want to use the Portamento Switch setting of the patch assigned to the part (p. 100), set this to “PAT.”

Value: OFF, ON, PAT

NOTE

This setting is ignored for parts to which a rhythm set is assigned.

Portamento Time

When portamento is used, this specifies the time over which the pitch will change. Higher settings will cause the pitch change to the next note to take more time. If you want to use the Portamento Time setting of the patch assigned to the part (p. 100), set this to “PAT.”

Value: 0–127, PAT

NOTE

This setting is ignored for parts to which a rhythm set is assigned.

Vibrato Rate

For each part, adjust the vibrato speed (the rate at which the pitch is modulated). The pitch will be modulated more rapidly for higher settings, and more slowly with lower settings.

Value: -64– +63

Vibrato Depth

For each part, this adjusts the depth of the vibrato effect (the depth at which the pitch is modulated). The pitch will be modulated more greatly for higher settings, and less with lower settings.

Value: -64– +63

Vibrato Delay

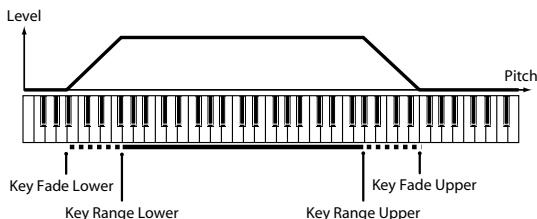
For each part, this adjusts the time delay until the vibrato (pitch modulation) effect begins. Higher settings will produce a longer delay time before vibrato begins, while lower settings produce a shorter time.

Value: -64– +63

Key Fade Lower (Part Keyboard Fade Width Lower)

Determines what will happen to the Part's level when a note that's lower than its specified keyboard range is played. Higher settings produce a more gradual change in volume. If you don't want the Tone to sound at all when a note below the keyboard range is played, set this parameter to 0.

Value: 0–127



Key Range Lower (Part Keyboard Range Lower)

Specifies the lowest note that the tone will sound for each part.

Value: C-1–UPPER

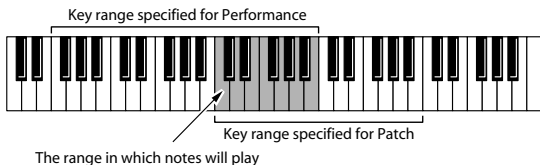
Key Range Upper (Part Keyboard Range Upper)

Specifies the highest note that the tone will sound for each part.

Value: LOWER–G9

NOTE

When the Key Range (p. 103) is set for each individual tone in a patch, sounds are produced in the range where the Key Range of each tone and the Key Range for the part overlap.



NOTE

If you attempt to raise the lower key higher than the upper key, or to lower the upper key below the lower key, the other value will be automatically modified to the same setting.

Key Fade Upper (Part Keyboard Fade Width Upper)

This determines what will happen to the Part's level when a note that's higher than its specified keyboard range is played. Higher settings produce a more gradual change in volume. If you don't want the Tone to sound at all when a note above the keyboard range is played, set this parameter to 0.

Value: 0–127

Receive Channel (Part Receive Channel)

Specifies the MIDI receive channel for each part

Value: 1–16

Voice Reserve

This setting specifies the number of voices that will be reserved for each part when more than 128 voices are played simultaneously.

Value: 0–63, FUL

NOTE

It is not possible for the settings of all parts to total an amount greater than 64. The remaining number of available voices will be displayed at (rest=). Pay attention to this readout as you make Voice Reserve settings.

Calculating the Number of Voices Being Used

The Fantom VS is able to play up to 128 notes simultaneously. The polyphony, or the number of voices (sounds) does not refer only to the number of sounds actually being played, but changes according to the number of tones used in the patches, and the number of Waves used in the tones. The following method is used to calculate the number of sounds used for one patch being played.

$$\begin{aligned}
 &(\text{Number of Sounds Being Played}) \times \\
 &(\text{Number of Tones Used by Patches Being Played}) \times \\
 &(\text{Number of Waves Used in the Tones})
 \end{aligned}$$

Part Velocity Sensitivity Offset

This changes the volume and cutoff frequency for each part according to the velocity with which the keys are pressed. If you want strongly played notes to raise the volume/cutoff frequency, set this parameter to positive (+) settings. If you want strongly played notes to lower the volume/cutoff frequency, use negative (-) settings. Set Velocity Sensitivity to "0" when you want sounds played at a fixed volume and cutoff frequency, regardless of the force with which the keys are played.

Value: -63– +63

NOTE

Patches also contain a Velocity Sensitivity Offset setting (p. 99). The ultimate Velocity Sensitivity Offset value is the sum of the part's and the patch's Velocity Sensitivity Offsets. Accordingly, if the patch's Velocity Sensitivity Offset parameter is set to "127" (maximum), there will be no change in the part's Velocity Sensitivity Offset, even when this is set to a positive value.

Part Pitch Bend Range

Specifies the amount of pitch change in semitones (2 octaves) that will occur when the Pitch Bend Lever is moved. The amount of change when the lever is tilted is set to the same value for both left and right sides. If you want to use the Pitch Bend Range setting of the patch assigned to the part (p. 108), set this to "PAT."

Value: 0–24, PAT

Receive Switch (Part Receive Switch)

For each part, specify whether MIDI messages will be received (ON), or not (OFF).

If this is "OFF," the part will not respond. Normally, you should leave this "ON," but you can turn it "OFF" when you do not want a specific part to be playing during song playback.

Value: OFF, ON

Scale Tune settings

The Fantom VS allows you to use temperaments other than equal temperament.

Parameter List

Part Scale Tune C–B

Make scale tune settings for each part.

Value: -64– +63

Equal Temperament

This tuning divides the octave into 12 equal parts, and is the most widely used method of temperament used in Western music. The Fantom VS employs equal temperament when the Scale Tune Switch is set to "OFF."

Just Temperament (Tonic of C)

Compared with equal temperament, the principle triads sound pure in this tuning. However, this effect is achieved only in one key, and the triads will become ambiguous if you transpose.

Arabian Scale

In this scale, E and B are a quarter note lower and C#, F# and G# are a quarter-note higher compared to equal temperament. The intervals between G and B, C and E, F and G#, Bb and C#, and Eb and F# have a natural third—the interval between a major third and a minor third. On the Fantom VS, you can use Arabian temperament in the three keys of G, C and F.

<Example>

Note name	Equal Temperament	Just Temperament (tonic C)	Arabian Scale
C	0	0	-6
C#	0	-8	+45
D	0	+4	-2
Eb	0	+16	-12
E	0	-14	-51
F	0	-2	-8
F#	0	-10	+43
G	0	+2	-4
G#	0	+14	+47
A	0	-16	0
Bb	0	+14	-10
B	0	-12	-49

MIDI-related settings

Parameter List

Rx Program Change (Receive Program Change Switch)

For each MIDI channel, specify whether MIDI Program Change messages will be received (ON), or not (OFF).

Rx Bank Select (Receive Bank Select Switch)

For each MIDI channel, specify whether MIDI Bank Select messages will be received (ON), or not (OFF).

Rx Pitch Bend (Receive Pitch Bend Switch)

For each MIDI channel, specify whether MIDI Pitch Bend messages will be received (ON), or not (OFF).

Rx Poly Key Pressure (Receive Polyphonic Key Pressure Switch)

For each MIDI channel, specify whether MIDI polyphonic key pressure messages will be received (ON), or not (OFF).

Rx Channel Pressure (Receive Channel Pressure Switch)

For each MIDI channel, specify whether MIDI Channel Pressure messages will be received (ON), or not (OFF).

Rx Modulation (Receive Modulation Switch)

For each MIDI channel, specify whether MIDI Modulation messages will be received (ON), or not (OFF).

Rx Volume (Receive Volume Switch)

For each MIDI channel, specify whether MIDI Volume messages will be received (ON), or not (OFF).

Rx Pan (Receive Pan Switch)

For each MIDI channel, specify whether MIDI Pan messages will be received (ON), or not (OFF).

Rx Expression (Receive Expression Switch)

For each MIDI channel, specify whether MIDI Expression messages will be received (ON), or not (OFF).

Rx Hold-1 (Receive Hold 1 Switch)

For each MIDI channel, specify whether MIDI Hold 1 messages will be received (ON), or not (OFF).

Phase Lock (Phase Lock Switch)

Set Phase Lock to “ON” when you want to suppress discrepancies in timing of parts played on the same MIDI channel.

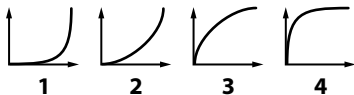
NOTE

When the Phase Lock parameter is set to “ON,” parts on the same MIDI channel are put in a condition in which their timing is matched, enabling them to be played at the same time. Accordingly, a certain amount of time may elapse between reception of the Note messages and playing of the sounds. Turn this setting to “ON” only as needed.

Velocity Curve Type

Velocity Curve selects for each MIDI channel one of the four following Velocity Curve types that best matches the touch of the connected MIDI keyboard. Set this to “OFF” if you are using the MIDI keyboard’s own velocity curve.

Value: OFF, 1–4



Adding Effects

This section explains the procedures and settings for applying effects in each mode.

cf.

For details of the Fantom VS's onboard effects, refer to **About the Onboard Effects** (p. 95).

Turning Effects On and Off

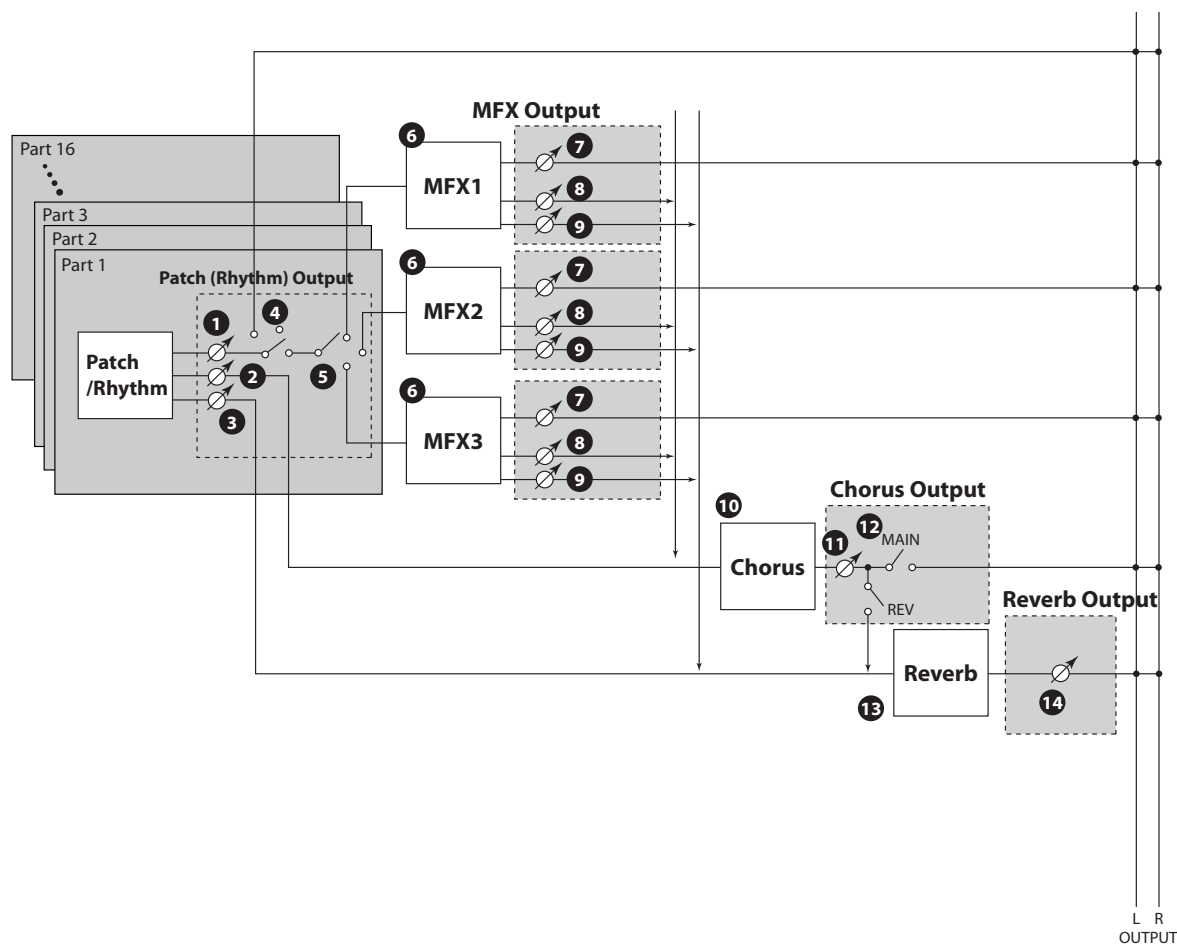
The Fantom VS's onboard effects can be turned on/off as a whole. Turn these settings OFF when you wish to listen to the unprocessed sound as you create a sound, or when you wish to use external effects processors instead of the built-in effects.

Applying Effects

In Performance you can use three multi-effects (MFX1, MFX2, MFX3), one chorus, and one reverb. For each of the three multi-effects, the chorus, and the reverb, you can specify whether it will operate according to the effect settings of the performance, or according to the effect settings of the patch or rhythm set assigned to the part you specify. The three multi-effects can be used independently, or you can connect two or three of them in series.

For details on parameters 1–17, refer to **Functions of Effect Parameters** (p. 146).

Signal Flow Diagram (Routing)



Functions of Effect Parameters

Part Output

Here you can make output settings for the Performance.

* These parameters are the same as the corresponding Performance settings. For details, refer to **Output Level (Part Output Level)** (p. 137).

1 Part Output Level

Set the level of the signal that is sent to the output destination specified by Part Output Assign (4).

Value: 0–127

2 Part Chorus Send Level

Sets the level of the signal sent to chorus for each part.

Value: 0–127

3 Part Reverb Send Level

Sets the level of the signal sent to reverb for each part.

Value: 0–127

4 Part Output Assign

Specifies for each part how the direct sound will be output.

Value

MFX: Output in stereo through multi-effects. You can also apply chorus or reverb to the sound that passes through multi-effects.

L+R: Output in stereo without passing through multi-effects.

L, R: Output in mono without passing through multi-effects.

PAT: The part's output destination is determined by the settings of the patch or rhythm set assigned to the part.

- Chorus and reverb are output in mono at all times.
- The output destination of the signal after passing through the chorus is set with the Chorus Output Select (12).

5 Part Output MFX Select (Part Output Multi-Effects Select)

Of the three systems of multi-effects that can be used simultaneously, specify which multi-effects will be used.

Value: 1–3(MFX-1–MFX-3)

MFX1–3

For the following parameters 6 – 9 , settings can be made individually for three systems multi-effects (MFX1–MFX3).

6 MFX Type (Multi-Effects Type)

Use this parameter to select from among the 78 available multi-effects.

Value: 0 (Through)–78

MFX1–3 Output (Multi-Effects 1–3 Output)

7 MFX Output Level (Multi-Effects Output Level)

Adjusts the volume of the sound that has passed through the multi-effects.

Value: 0–127

8 MFX Chorus Send Level (Multi-Effects Chorus Send Level)

Adjusts the amount of chorus for the sound that passes through multi-effects. If you don't want to add the Chorus effect, set it to "0."

Value: 0–127

9 MFX Reverb Send Level (Multi-Effects Reverb Send Level)

Adjusts the amount of reverb for the sound that passes through multi-effects. If you don't want to add the Reverb effect, set it to "0."

Value: 0–127

Chorus

10 Chorus Type

Selects either chorus or delay.

Value

0 (Off): Neither chorus or delay is used.

1 (Chorus): Chorus is used.

2 (Delay): Delay is used.

3 (GM2 Chorus): General MIDI 2 chorus

Chorus Output

11 Chorus Output Level

Adjusts the volume of the sound that has passed through chorus.

Value: 0–127

12 Chorus Output Select

Specifies how the sound routed through chorus will be output.

Value

MAIN: Output to the OUTPUT jacks in stereo.

REV: Output to reverb in mono.

M+R: Output to the OUTPUT jacks in stereo, and to reverb in mono.

Reverb

13 Reverb Type

Selects the type of reverb.

Value

0 (Off): Reverb is not used.

1 (Reverb): Normal reverb

2 (SRV Room): This reverb simulates typical room acoustic reflections.

3 (SRV Hall): This reverb simulates typical concert hall acoustic reflections.

4 (SRV Plate): This reverb simulates a reverb plate, a popular type of artificial reverb unit that derives its sound from the vibration of a metallic plate. You can also achieve unusual metallic-sounding reverbs using "SRV Plate."

5 (GM2 Reverb): General MIDI 2 reverb

Reverb Output

14 Reverb Output Level

Adjusts the volume of the sound that has passed through reverb.

Value: 0–127

TIP

If you want to use common controllers for the entire Fantom VS, select “SYS CTRL 1”–“SYS CTRL 4.” MIDI messages used as System Control 1–4 are set with the Sys Ctrl 1–4 Source parameters (p. 152).

NOTE

In patch/rhythm set mode, there are parameters that determine, for each tone/rhythm tone, whether or not Pitch Bend, Controller Number 11 (Expression) and Controller Number 64 (Hold 1) are received (p. 120). When these settings are “ON,” and the MIDI messages are received, then when any change is made in the settings of the desired parameter, the Pitch Bend, Expression, and Hold1 settings also change simultaneously. If you want to change the targeted parameters only, then set these to “OFF.”

- There are parameters that determine whether or not specific MIDI messages are received for each MIDI channel (p. 120). When using the multi-effects control, confirm that any MIDI messages used for the multi-effects control will be received. If the Fantom VS is set up such that reception of MIDI messages is disabled, then the multi-effects control will not function.

Control 1–4 Dest (Multi-Effects Control 1–4 Destination)

Sets the multi-effects parameters to be controlled with the multi-effects control. The multi-effects parameters available for control will depend on the multi-effects type.

Control 1–4 Sens (Multi-Effects Control 1–4 Sensitivity)

Sets the amount of the multi-effects control’s effect that is applied. To make an increase in the currently selected value (to get higher values, move to the right, increase rates, and so on), select a positive value; to make a decrease in the currently selected value (to get lower values, move to the left, decrease rates, and so on), select a negative value. For either positive or negative settings, greater absolute values will allow greater amounts of change. Set this to “0” if you don’t want to apply the effect.

Value: –63– +63

MFX Control Channel (Multi-Effects Control Channel)

This determines the channel that will be used for reception when using the Multi-effects Control to modify multi-effects parameters in real time, when the MFX1–3 Source parameter (p. 149) is set to “PRF.” Set this to “OFF” when the Multi-effects Control is not being used.

Value: 1–16, OFF

Multi-Effects Control

If you wanted to change the volume of multi-effects sounds, the delay time of Delay, and the like, using an external MIDI device, you would need to send System Exclusive messages-MIDI messages designed exclusively for the Fantom VS. However, System Exclusive messages tend to be complicated, and the amount of data that needs to be transmitted can get quite large.

For that reason, a number of the more typical of the Fantom VS's multi-effects parameters have been designed so they accept the use of Control Change (or other) MIDI messages for the purpose of making changes in their values. For example, you can use the Pitch Bend lever to change the amount of distortion, or use the keyboard's touch to change the delay time of Delay. The parameters that can be changed are predetermined for each type of multi-effect.

In the multi-effect setting screen, a "c" symbol will be shown at the left of the parameter.

The function that allows you use MIDI messages to make these changes in realtime to the multi-effects parameters is called the **Multi-effects Control**. Up to four multi-effects controls can be used in a single patch/rhythm set/performance.

When the multi-effects control is used, you can select the amount of control (Sens parameter) applied, the parameter selected (Destination parameter), and the MIDI message used (Source parameter).

TIP

By using the Matrix Control instead of the Multi-effects Control, you can also change the parameters of some popular multi-effects in realtime (p. 121).

Specifying the Effect Source

For each of the three multi-effects, the chorus, and the reverb, you can specify whether it will operate according to the effect settings of the performance, or according to the effect settings of the patch or rhythm set assigned to the part you specify.

MF1-3 Source (Multi-Effects 1-3 Source)

Selects the multi-effects parameter settings that will be used by the performance. If you wish to use the performance settings, select "PRF." If you wish to use the settings of the patch/rhythm set assigned to one of the parts, select the part number.

Value: PRF, P1-P16

When Patch or Rhythm Set Settings Are Selected

When the patch or rhythm set's multi-effects settings are selected, those settings are shown in each of the performance's multi-effects setting screens, and the settings can be then be changed as well. Changes to patch or rhythm set multi-effects parameter settings are lost when another patch or rhythm set is selected. To keep the modified settings, save the settings.

Chorus Source

Selects the chorus parameter settings that will be used by the performance. If you wish to use the performance settings, select "PRF." If you wish to use the settings of the patch/ rhythm set assigned to one of the parts, select the part number.

Value: PRF, P1–P16

When Patch or Rhythm Set Settings Are Selected

When the patch or rhythm set's chorus settings are selected, those settings are shown in each of the performance's chorus setting screens, and the settings can be then be changed as well. Changes to patch or rhythm set chorus parameter settings are lost when another patch or rhythm set is selected. To keep the modified settings, save the settings.

Reverb Source

Selects the reverb parameter settings that will be used by the performance. If you wish to use the performance settings, select "PRF." If you wish to use the settings of the patch/ rhythm set assigned to one of the parts, select the part number.

Value: PRF, P1–P16

When Patch or Rhythm Set Settings Are Selected

When the patch or rhythm set's reverb settings are selected, those settings are shown in each of the performance's reverb setting screens, and the settings can be then be changed as well. Changes to patch or rhythm set reverb parameter settings are lost when another patch or rhythm set is selected. To keep the modified settings, save the settings.

Specifying the multi-effect structure (MFX Structure)

Here's how to specify how MFX 1–3 will be connected.

MFX Structure (MFX Structure Type)

Specify how MFX1–3 will be connected.

Value: Type 01–Type 16

System Settings

Settings that affect the entire operating environment of the Fantom VS, such as tuning and MIDI message reception, are referred to as **system functions**. This section explains how to make settings for the System functions and describes the functions of the different System parameters.

Functions of System Parameters

This section explains what the different System parameters do, and also how these parameters are organized.

System MIDI		
Parameter	Value	Description
Rx Program Change (Receive Program Change Switch)	OFF, ON	Specifies whether Program Change messages will be received (ON) or not (OFF).
Rx Bank Select (Receive Bank Select Switch)	OFF, ON	Specifies whether Bank Select messages will be received (ON) or not (OFF).

System Sound		
Parameter	Value	Description
Master Tune	415.3–466.2 Hz	Adjusts the overall tuning of the Fantom VS. The display shows the frequency of the A4 note (center A).
Master Level	0–127	Adjusts the volume of the entire Fantom VS.
Master Key Shift	-24– +24	Shifts the overall pitch of the Fantom VS in semitone steps.
Patch Remain (Patch Remain Switch)	OFF, ON	<p>Specifies whether currently sounding notes will continue sounding when another patch or rhythm set is selected (ON), or not (OFF). Also, when this is "ON," changes produced by incoming MIDI messages such as Volume or Pan (CC 5, 7, 10, 65, 68, 71–74, RPN 0, 1, 2, MONO ON, POLY ON), as well as tonal quality and volume changes produced by the various controllers will be inherited.</p> <p>NOTE Effects settings change as soon as you switch to a new patch or rhythm set, without being influenced by the Patch Remain setting. Because of this, certain effects settings can cause notes that were until then sounding to no longer be heard, even though Patch Remain has been set to on.</p>

System Control		
Parameter	Value	Description
Source 1-4	OFF, CC01-31, 33-95, PITCH BEND AFTERTOUCH	System Control Assign selects the MIDI message used as the System Control. OFF: The system control knob will not be used. CC01-31, 33-95: Controller numbers 1-31, 33-95 PITCH BEND: Pitch Bend AFTERTOUCH: Aftertouch

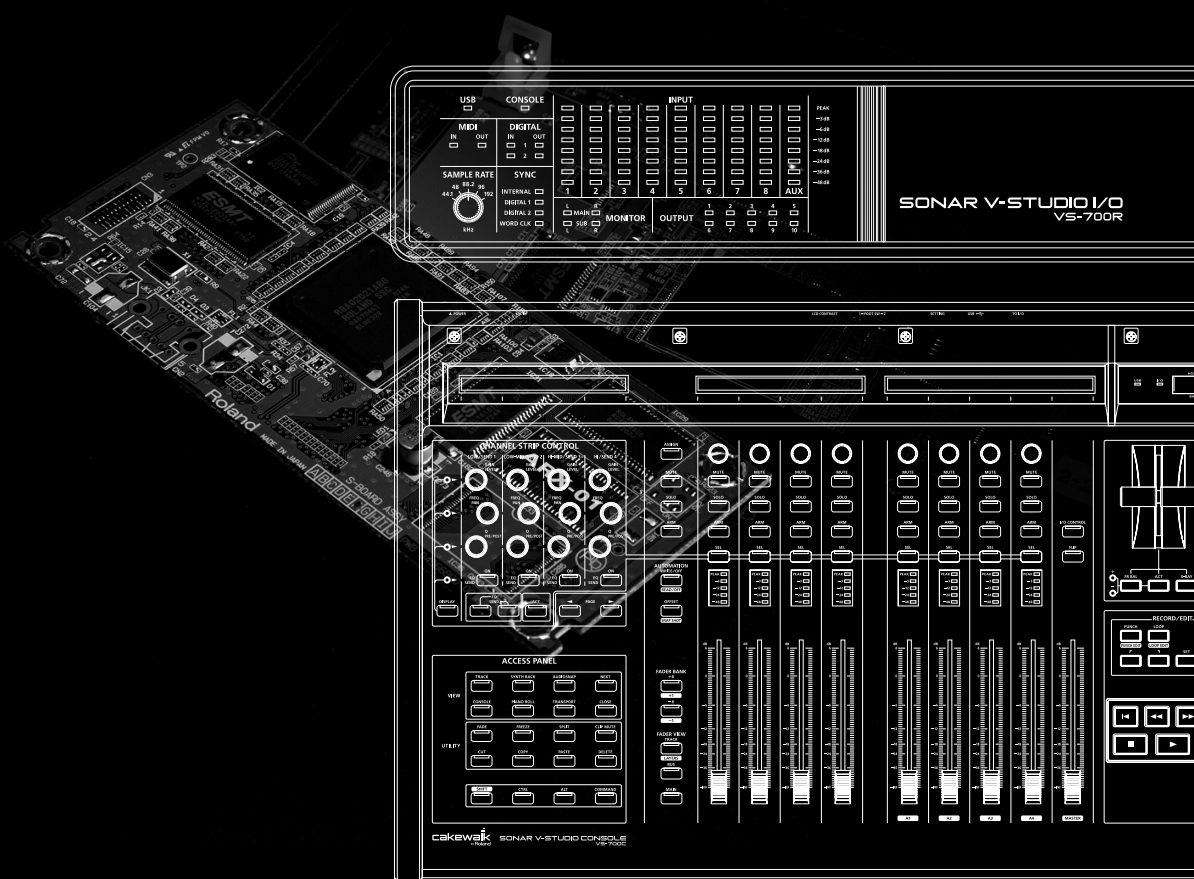
System Control

This function, which departs from previously used methods, and instead allows you to use MIDI messages to change tone settings in realtime, is called the **Matrix Control** (p. 121). Similarly, the function allowing you to use MIDI messages to change multi-effects settings in realtime is called the **Multi-effects Control** (p. 149).

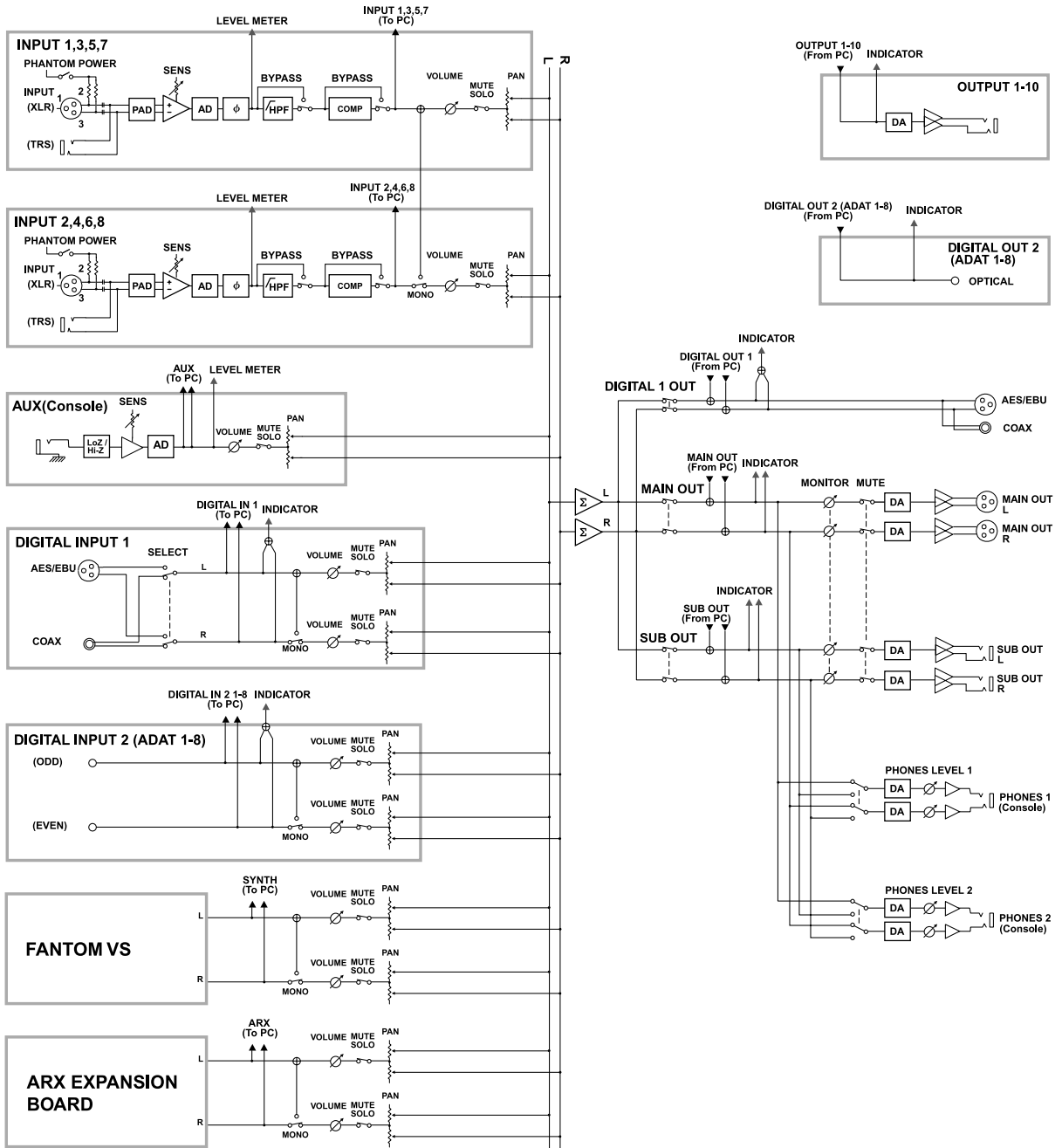
Normally, the Matrix Control is used for making patch settings, and the Multi-effects Control for making settings to patches, rhythm sets, and performances. However, if you do not need to change the MIDI messages used for matrix control or multi-effects control by each patch/rhythm set/performance, or if you want to use a specific MIDI message for matrix control or multi-effects control, you will want to make use of **System Control**. In other words, you could call the System Controls global Matrix Control/ Multi-effects Control for the entire Fantom VS.

You can use up to four System Controls.

Appendix



VS-700R Block Diagram



Installing the ARX Expansion Board

Up to one optional Expansion Board (ARX series; sold separately) can be installed in the VS-700R.

cf. For details on ARX expansion boards, refer to the owner's manual of your ARX expansion board.

cf. For details on the ARX expansion editor (plug-in), refer to the online manual for the editor (plug-in).

Port settings (MIDI input and audio output)

The ARX expansion board's ports have the following names.

	Port Name
MIDI Out Port	ARX
Audio In Port	ARX

Cautions When Installing an Expansion Board

- To avoid the risk of damage to internal components that can be caused by static electricity, please carefully observe the following whenever you handle the board.
 - Before you touch the board, always first grasp a metal object (such as a water pipe), so you are sure that any static electricity you might have been carrying has been discharged.
 - When handling the board, grasp it only by its edges. Avoid touching any of the electronic components or connectors.
 - Save the bag in which the board was originally shipped, and put the board back into it whenever you need to store or transport it.
- Use a Phillips screwdriver that is suitable for the size of the screw (a number 2 screwdriver). If an unsuitable screwdriver is used, the head of the screw may be stripped.
- To remove a screw, rotate the screwdriver counter-clockwise. To tighten the screws, rotate the screwdriver clockwise.
- When installing Expansion Board, remove only the specified screws.
- Be careful that the screws you remove do not drop into the interior of the VS-700R.
- Do not leave the bottom cover removed. After installation of the Expansion Board is complete, be sure to replace the cover.
- Be careful not to cut your hand on the opening for installing the board.
- Do not touch any of the printed circuit pathways or connection terminals.
- Never use excessive force when installing a circuit board. If it doesn't fit properly on the first attempt, remove the board and try again.
- When circuit board installation is complete, double-check your work.
- Always turn the unit off and unplug the power cord before attempting installation of the circuit board (ARX series).
- Install only the specified circuit board (ARX series). Remove only the specified screws.

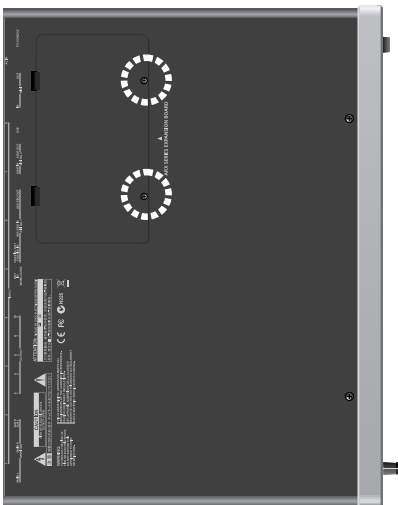


How to Install an Expansion Board

Install the Expansion Board after removing the panel cover.

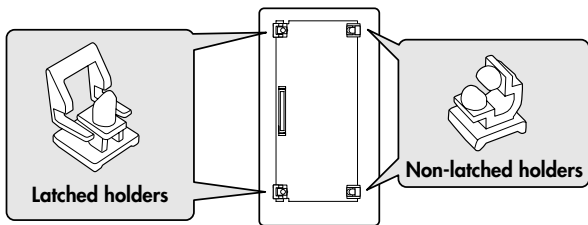
- 1. Before installing the Expansion Board, turn off the power of the VS-700R and all connected devices, and disconnect all cables, including the Power cable, from the VS-700R.**
- 2. From the VS-700R, remove only the screws shown in the following diagram, and detach the cover.**

VS-700R Top Panel

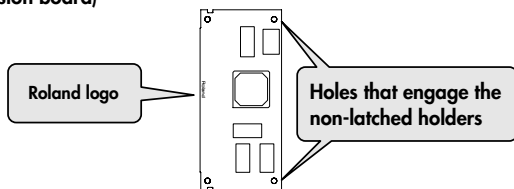


- 3. Orient the board with the slot of the VS-700R as shown in the illustration.**

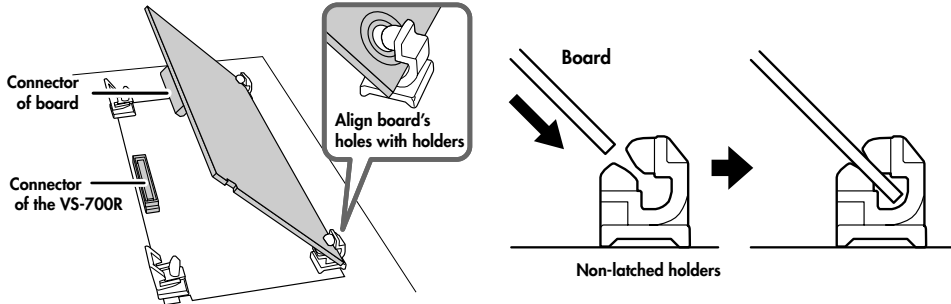
Slot of the VS-700R



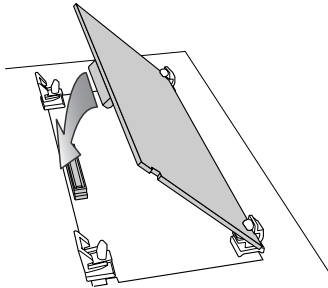
Board
(expansion board)



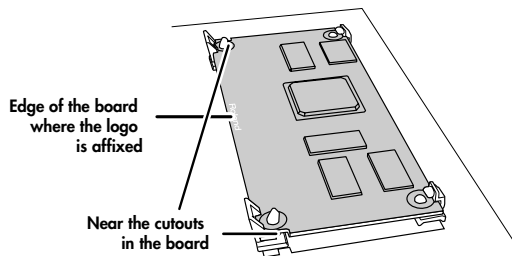
- 4. Insert the board into the VS-700R's non-latched board holders until you hear a click.**



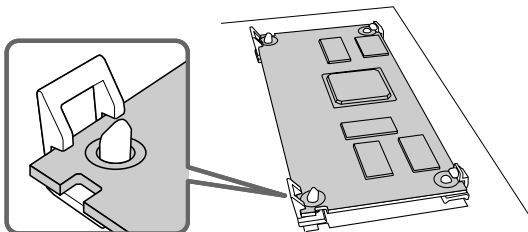
- 5. Gently lower the board into place.**



- 6. From above, press down on the board at the three locations indicated in the illustration until the latched board holders lock into place.**



- 7. Verify that the latched board holders are locked.**

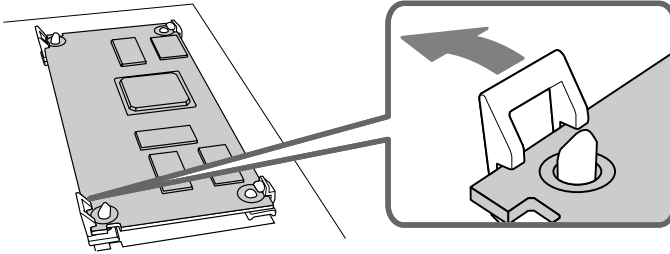


- 8. Use the screws that you removed in step 2 to fasten the cover back in place.**

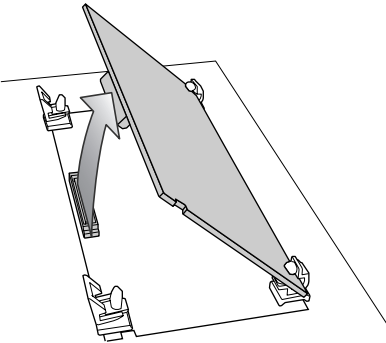
Removing an Expansion Board

To remove an expansion board, reverse the process by which you inserted it.

1. Unlatch the latched board holders.



2. Verify that the two latched board holders are unlocked, then gently pull up the board and disconnect the connector.



3. Disengage the board from the non-latched board holders, and remove the board.

4. Attach the cover by reversing step 2 of the installation process.

Installation de la carte d'expansion

(French Language for Canadian Safety Standard)

Un maximum de un carte d'expansion optionnelles (serie ARX; vendues separement) peuvent etre installees dans le VS-700R.

Precautions a prendre lors de l'installation d'une carte d'expansion

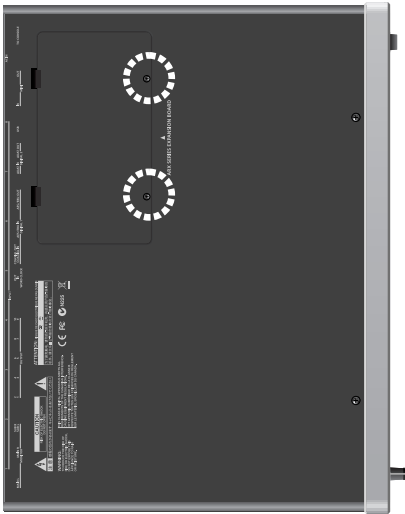
- Veuillez suivre attentivement les instructions suivantes quand vous manipulez la carte afin d'éviter tout risque d'endommagement des pieces internes par l'électricite statique.
 - Toujours toucher un objet metallique relie a la terre (comme un tuyau par exemple) avant de manipuler -la carte pour vous decharger de l'électricite statique que vous auriez pu accumuler.
 - Lorsque vous manipulez la carte, la tenir par les cotes. Evitez de toucher aux composants ou aux connecteurs.
 - Conservez le sachet d'origine dans lequel etait la carte lors de l'envoi et remettez la carte dedans si vous devez la ranger ou la transporter.
- Utilisez un tournevis de type Phillips de la taille adaptee a celle des vis (tournevis numero 2). Un tournevis inadquat peut endommager la tete de la vis.
- Pour retirer une vis, tourner le tournevis dans le sens contraire des aiguilles d'une montre. Pour serrer les vis, tourner le tournevis dans le sens des aiguilles d'une montre.
- Pour installer les carte d'expansion, retirer uniquement les vis mentionnees.
- Assurez-vous que les vis retirees ne tombent pas dans le VS-700R.
- Ne pas laisser le panneau de protection avant detache. S'assurer de l'avoir rattacher apres avoir installe le disque dur.
- Faites attention de ne pas vous couper sur l'ouverture d'installation de la carte.
- Ne pas toucher aux circuits imprimes ou aux connecteurs.
- Ne jamais forcer lors de l'installation de la carte de circuits imprimes. Si la carte s'ajuste mal au premier essai, enlevez la carte et recommencez l'installation.
- Quand l'installation de la carte de circuits imprimes est terminee, reverifiez si tout est bien installe.
- Toujours eteindre et debrancher le VS-700R avant de commencer l'installation de la carte. (ARX series).



Installation d'une carte d'expansion

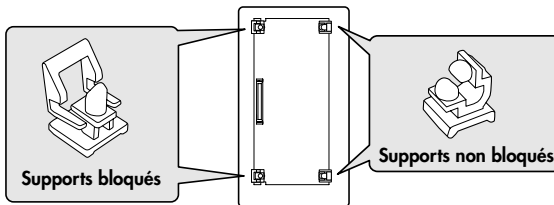
Retirer le panneau inferieur avant d'installer les cartes d'expansion.

1. Avant d'installer la carte d'expansion Wave, coupez l'alimentation du VS-700R et de tous les appareils branches, et debranchez tous les cables du VS-700R, y compris le cable d'alimentation.
2. Sur les modeles VS-700R, retirer uniquement les vis illustrees dans le schema ci-dessous et retirer le couvercle.

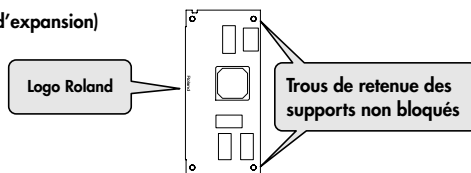


3. Orienter la carte de facon a ce qu'elle s'aligne avec la vente de le VS-700R, comme le montre l'illustration.

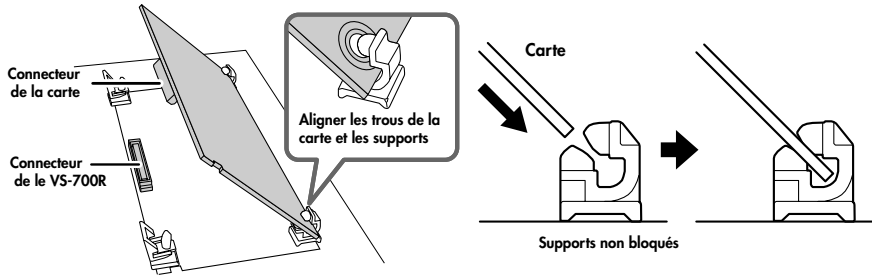
Fente de le VS-700R



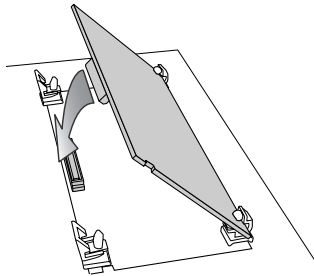
Carte
(carte d'expansion)



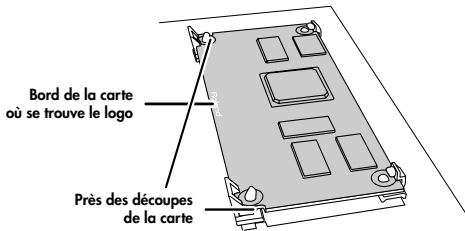
4. Insérer la carte dans les supports non bloqués jusqu'à ce qu'un clic se fasse entendre.



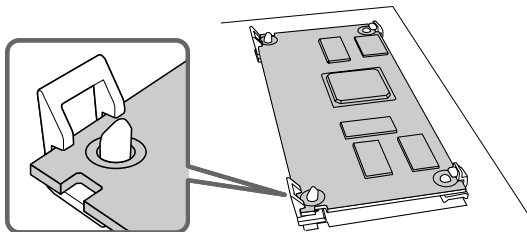
5. Abaisser la carte délicatement.



6. Appuyer sur la carte aux trois points indiqués sur l'illustration jusqu'à ce que les supports se bloquent en place.



7. S'assurer que les supports de carte sont bien bloqués.

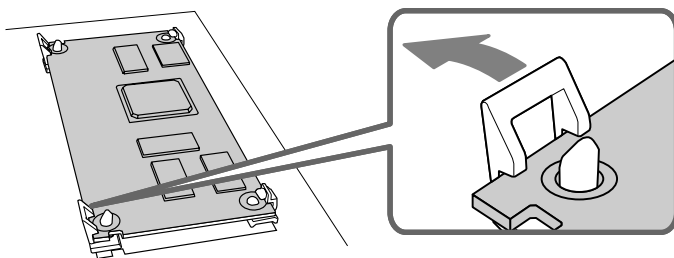


8. Remettez le couvercle en place à l'aide des vis retirées à l'étape 2.

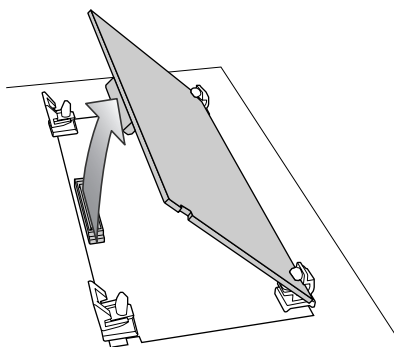
Retrait d'une carte d'expansion

Pour retirer une carte d'expansion, suivre le processus inverse du processus d'insertion.

- 1. Suivre les instructions données dans le guide d'utilisation de le VS-700R pour degager la fente ou la carte d'expansion a ete installée.**



- 2. Debloquer les supports de carte.**

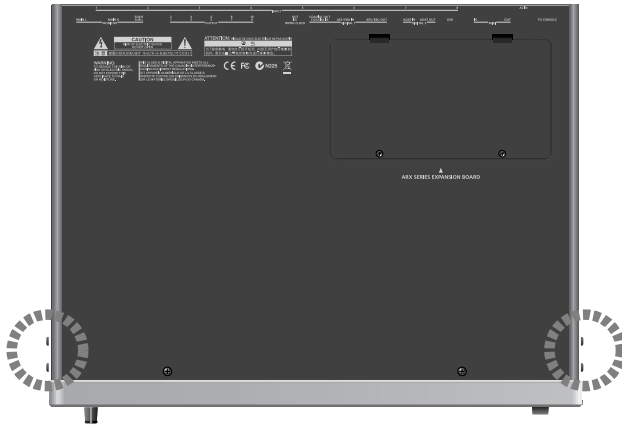


- 3. Verifier que les deux supports de carte sont debloques puis tirer delicatement sur la carte et deconnecter le connecteur.**
- 4. Fixer le couvercle en inversant l'etape 2 du processus d'installation.**

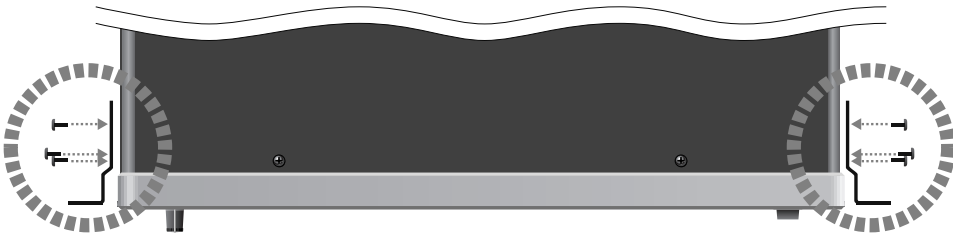
Attaching the Rackmount Brackets

If you want to install the VS-700R I/O in a 19" rack, attach the included rackmount brackets.

1. **Disconnect all connection cables from the VS-700R, including the power cord.**
2. **As shown in the illustration below, remove three screws each from the left and right sides of the VS-700R.**



3. **Attach the rackmount brackets using the screws you removed in step 2.**



4. **Install the unit in the rack as appropriate for your situation.**
 - * Fasten the screws securely.
 - * Be careful not to lose the included screws.
 - * For safety's sake, do not use any screws other than the included ones.
 - * If you install the system in a 19" rack, you must leave at least 1 cm of space outside the intake vent and exhaust vent.
 - * Be careful when installing the unit in the rack so you do not get your fingers pinched.
 - * For the installation, refer also to "**Placement**" (p. 6).

Using only the VS-700C Console (Standalone Mode)

You can connect the VS-700C console via its USB connector directly to your computer and use it as a control surface.

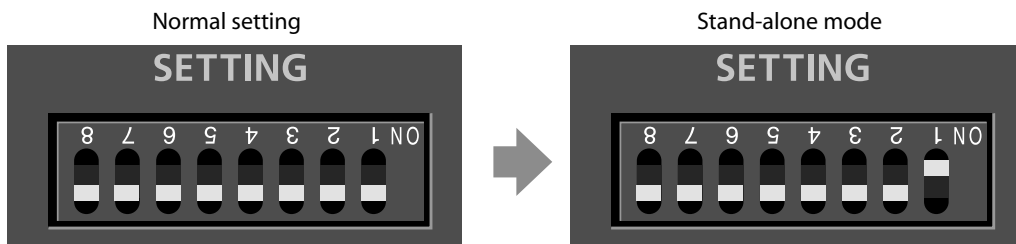
About the Driver

If you are connecting the VS-700C console via its USB connector directly to your computer, you'll need to install the dedicated VS-700C driver. The VS-700C driver and a Readme file explaining how to install it are located in the "Drivers/VS700C" folder of the "SONAR V-STUDIO 700 CD-ROM."

For details on installing the driver, refer to the Readme file.

Settings on the VS-700C

Set the SETTING DIP switches located on the rear panel of the VS-700C console as shown below, and then turn the VS-700C off, then on again.



Limitations

- With the above setting, you won't be able to connect the VS-700R I/O unit to the VS-700C.
- The VS-700C console's audio functionality (AUX IN, PHONES 1/2) will not work.

Using only the VS-700R I/O

The VS-700R I/O unit can be used as an audio interface and synthesizer sound module even when the VS-700C console is not connected.

Connecting Two VS-700R I/O Units

The Advantages of Connecting VS-700R I/O Units

By connecting two VS-700R I/O units, you'll be able to take advantage of the audio input/output of the two units, have access to two synthesizers (Fantom VS), and be able to use two ARX expansion boards.

NOTE

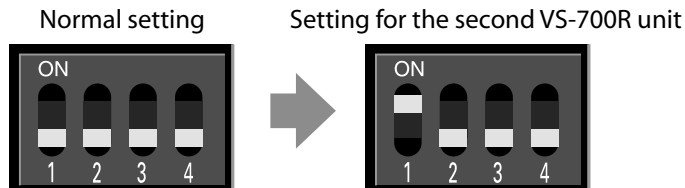
You will need a faster system if you connect two VS-700R I/O units.

Only ASIO is supported when using the audio input/output of the second unit

- Applications that do not support ASIO cannot be used
- The audio ports of the second unit cannot be selected if SONAR is set to the WDM/KS or MME driver mode.

Changes to the Settings

If you use a second I/O unit, open the top cover (ARX slot) of the second unit and set its SETTING DIP switches as follows. Then turn the VS-700R's power off, then on again.



MEMO

The audio/MIDI device names for the second I/O unit will be the same as for the first unit but with a "2" added to the port name.

Connections

1. Set the Sampling Rate of the two VS-700R I/O units to the same value (p. 80).
2. Connect the second VS-700R I/O unit to your computer's USB connector.

3. Connect the WORDCLOCK.

Use a BNC cable to connect the WORDCLOCK OUT connector of the first unit to the WORDCLOCK IN connector of the second unit.

Set the audio clock source of the second unit to "Wordclock" (p. 82).

Now the audio clock of the second unit will be synchronized.

4. Start up SONAR.

NOTE

The USB connectors to which you connect the two VS-700R I/O units must share the same USB controller within your computer.

Otherwise, the audio ports of the second unit won't be recognized. If the audio ports of the second VS-700R I/O unit are not displayed in SONAR, try reconnecting the USB cables of the two VS-700R I/O units to different connectors on your computer, then quit and restart SONAR. Repeat this procedure until the audio ports of both VS-700R I/O units are displayed.

Alternatively, you can connect the two VS-700R I/O units to a USB hub that is compatible with USB 2.0, and connect the hub to your computer.

Regarding Monitoring

By connecting the direct monitor mixer output of the second VS-700R I/O unit to the first VS-700R I/O unit, all inputs of the second I/O unit can be monitored from the first VS-700R I/O unit.

Example connections for monitoring

1. **Connect the second unit's SUB OUT to the first unit's INPUT 7/8.**
2. **As the second unit's direct monitor mixer output, select SUB.**
3. **On the first unit, adjust the INPUT 7/8 input level.**

You'll hear the second unit's direct monitor signal in the first unit's direct monitor mixer output.

Connecting an EDIROL DV-7DL (Video Control)

The VS-700C's following controllers can be linked with an EDIROL video editing system such as the EDIROL DV-7DL.

- Audio channels 5–8 and the master fader
- Transport
- Jog/shuttle wheel
- T-bar
- Record/Edit tool section



Connecting the EDIROL DV-7DL and VS-700C

Use a USB cable to connect the EDIROL DV-7DL's rear panel USB connector to the VS-700C's rear panel USB connector.

To Enable Video Control

In the VS-700C's T-bar section, press the [VIDEO CTRL] button.

NOTE

SONAR's video functionality will not be controlled in VIDEO CTRL mode.
Only the EDIROL video editing system is supported.

About V-LINK

What is V-LINK?

V-LINK (**V-LINK**) is a function that allows music and images to be performed together. By using MIDI to connect two or more V-LINK compatible devices, you can easily enjoy performing a wide range of visual effects that are linked to the expressive elements of a music performance.

For example, if you use the VS-700 in conjunction with the EDIROL P-10, you'll be able to do the following.

- Using the various controllers of the VS-700C console, you can control the EDIROL P-10 and perform image switching.
- In SONAR, you'll be able to record and play back V-LINK data.

MEMO

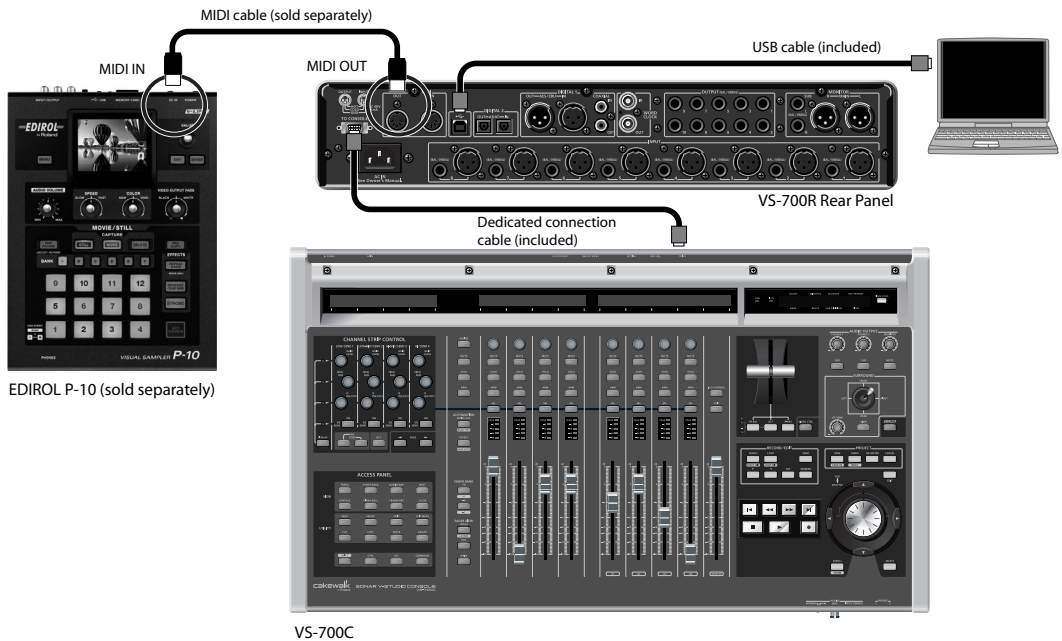
In order to use V-LINK between the VS-700 and the EDIROL P-10, you'll need to make connections using a MIDI cable (sold separately).

Connection Examples


As an example, we will use a setup in which the VS-700 is connected to the EDIROL P-10. Use a MIDI cable to connect the VS-700R's MIDI OUT connector to the MIDI IN connector of the EDIROL P-10.

MEMO

To prevent malfunction or speaker damage, minimize the volume on all your equipment and turn off the power before you make connections.



Settings for SONAR

Insert a MIDI track somewhere other than in the project, and make the following driver settings for the input and output. Next, turn on  the [Input Echo] button of the MIDI track. Once set up this way, you'll be able to record and play back V-LINK data in SONAR.

Port	Driver
MIDI Input	V-LINK (VS-700)
MIDI Output	IO MIDI (VS-700)

Turning the V-LINK ON/OFF

1. In the left of the panel, press [V-LINK] so the indicator is lighted.

The V-LINK setting will be on.

When the V-LINK button is lighted, you'll be able to carry out video control in keeping with operations performed on the VS-700C.



When V-LINK is switched on, the Video Control function (p. 168) is turned off, and the [VIDEO CTRL] button will function on behalf of the V-LINK feature (switching video clips).

2. Press [V-LINK] again.

The V-LINK button will go out, and the V-LINK setting will be off.

V-LINK Parameters

VS-700C Controller	V-LINK Control	Transmitted MIDI Message
FR BALL	Image Switching (Clip Switching)	C0 00
ACT	Image Switching (Clip Switching)	C0 01
X-RAY	Image Switching (Clip Switching)	C0 02
VIDEO CTRL	Image Switching (Clip Switching)	C0 03
PUNCH	Image Switching (Clip Switching)	C0 04
LOOP	Image Switching (Clip Switching)	C0 05
SNAP	Image Switching (Clip Switching)	C0 06
>	Image Switching (Clip Switching)	C0 07
<	Image Switching (Clip Switching)	C0 08
SET	Image Switching (Clip Switching)	C0 09
MAKER	Image Switching (Clip Switching)	C0 0A
VIEW	Image Switching (Clip Switching)	C0 0B
JOG	Video Control, Video Bank Select	B0 00 00-13
T-BAR	Video Control	B0 0B 00-7F
JOYSTIC-Y	Video Control, Color Cr Control	B0 47 00-7F
LFE SEND	Video Control	B0 49 00-7F
JOYSTIC-X	Video Control, Brightness Control	B0 4A 00-7F
SHUTTLE	Video Control, Playback Speed	E0 00 00/20 00/40 00/00 10/00 30/00 40/40 40/00 50/00 60/00 70/7F 7F/
V-LINK	Mode Switching	FOH 41H 10 00H 51H 12H 10H 00H 00H 01H 6F F7H FOH 41H 10 00H 51H 12H 10H 00H 00H 00H 70 F7H

Troubleshooting

This chapter lists problems that you might experience while using the VS-700, and how to solve them. For more about the following problems, which might occur during installation or setup, refer to the **“Troubleshooting”** chapter in **“Getting Started”** (separate document).

- Problems when installing the driver or SONAR
- Problems with the driver
- Problems with SONAR

Problems with the VS-700R Unit

All INPUT indicators are blinking.

.....

The cooling fan has stopped.

Turn off the power, and address the cause of the overheating or damage. Contact a service center listed in the “Information” leaflet (separate document).

Problems with the VS-700C Unit

Fader touch sensitivity does not respond correctly, or the fader motor operates incorrectly while you’re operating the fader

.....

Adjust the touch sensitivity as described in **“Adjusting the Touch Sensitivity of the Faders”** (p. 33).

Specifications

VS-700C, VS-700R: USB Audio Interface and Controller

Number of Audio Record/ Playback Channels	<p>Sampling Frequency = 44.1 kHz, 48 kHz Record: 19 channels Playback: 24 channels</p> <p>Sampling Frequency = 88.2 kHz, 96 kHz Record: 15 channels Playback: 20 channels</p> <p>Sampling Frequency = 192 kHz Record: 5 channels Playback: 10 channels</p>
Signal Processing	<p>PC interface: 24 bits AD/DA Conversion: 24 bits Internal: 40 bits</p>
Sampling Frequency	<p>AD/DA Conversion: 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 192 kHz DIGITAL 1,2 (IN/OUT): 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz</p>
Nominal Input Level	<p>INPUT 1–8: -40 to +4 dBu (PAD: ON) -60 to -16 dBu (PAD: OFF) AUX IN: -60 to -20 dBu (NORMAL) -50 to -10 dBu (Hi-Z)</p>
Pad	20 dB ON/OFF
Maximum Input Level	<p>INPUT 1–8: +2 dBu (PAD: OFF) +22 dBu (PAD: ON) AUX IN: -2 dBu (NORMAL, SENS: min.) +8 dBu (Hi-Z, SENS: min.)</p>
Input Impedance	<p>INPUT 1–8: 35 k ohms AUX In: 3 k ohms (NORMAL) 470 k ohms (Hi-Z)</p>
Head Room	18 dB
Nominal Output Level	MAIN OUT, SUB OUT, OUTPUT 1–10: +4 dBu (balanced)
Maximum Output Level	<p>MAIN OUT, SUB OUT, OUTPUT 1–10: +22 dBu (balanced) PHONES 1–2: 100 mW + 100 mW (32 ohms loaded)</p>
Output Impedance	<p>MAIN OUT, SUB OUT, OUTPUT 1–10: 600 ohms (balanced) PHONES 1–2: 44 ohms</p>
Recommended Load Impedance	<p>MAIN OUT, SUB OUT, OUTPUT 1–10: 10 k ohms or greater PHONES 1–2: 32 ohm or greater</p>
Phantom Power	<p>DC +48 V (unloaded maximum), 10 mA (maximum load) (All XLR type inputs) * Should be less than 50 mA in total</p>
Frequency Response	<p>INPUT 1–8 → MAIN OUT: 20–20kHz 0 dB / -2 dB (Sampling Frequency: 44.1 kHz / 48 kHz) 20–40kHz 0 dB / -2 dB (Sampling Frequency: 88.2 kHz / 96 kHz) 20–60kHz 0 dB / -3 dB (Sampling Frequency: 192 kHz) 20–90kHz 0 dB / -8 dB (Sampling Frequency: 192 kHz)</p> <p>AUX IN → MAIN OUT: 20–20kHz 0dB / -2 dB (Sampling Frequency: 44.1 kHz / 48 kHz, NORMAL / Hi-Z, SENS: min.) 20–40kHz 0dB / -3 dB (Sampling Frequency: 88.2 kHz / 96 kHz, NORMAL / Hi-Z, SENS: min.) 20–40kHz 0dB / -3 dB (Sampling Frequency: 192 kHz, NORMAL / Hi-Z, SENS: min.) 20–90kHz 0 dB / -12 dB (Sampling Frequency: 192 kHz, NORMAL / Hi-Z, SENS: min.)</p> <p>* Internal Direct Monitor Mixer setting Stereo Link: ON, Input channel fader: Unity only one channel</p>

Total Harmonic Distortion + Noise	<p>INPUT1 1-8→MAIN OUT: 0.01 % typ. (PAD: ON, GAIN: min., -1dB) AUX IN→MAIN OUT: 0.01 % typ. (NORMAL, SENS: min., -1dB) 0.3 % typ. (Hi-Z, SENS: min., -1dB)</p> <ul style="list-style-type: none"> * Internal Direct Monitor Mixer setting Stereo Link on, Input channel fader: Unity only one channel * All sampling frequency
Residual Noise Level	<p>INPUT 1-8→MAIN OUT: -81 dBu typ.(PAD: ON, GAIN: min., 400 ohms terminated, IHF-A) AUX IN→MAIN OUT: -83 dBu typ. (PAD: ON, GAIN: min., 400 ohms terminated, IHF-A)</p> <ul style="list-style-type: none"> * Internal Direct Monitor Mixer setting Stereo Link: ON, Input channel fader: Unity only one channel * All sampling frequency
Equivalent Input Noise Level (E.I.N.)	<p>INPUT 1-8: -123 dBu typ. (PAD: OFF, GAIN: max., 400 ohms terminated, IHF-A) AUX IN: -120 dBu typ. (NORMAL, SENS: max., 400 ohms terminated, IHF-A) -108 dBu typ. (Hi-Z, SENS: max., 400 ohms terminated, IHF-A)</p> <ul style="list-style-type: none"> * Output Connector: MAIN OUT * Internal Direct Monitor Mixer setting Stereo Link: ON, Input channel fader: Unity only one channel * All sampling frequency
Dynamic Range	<p>AD block INPUT 1-8: 104 dB typ. (PAD: ON, GAIN: min.) AUX IN: 106 dB typ. (NORMAL / Hi-Z, SENS: min.)</p> <p>DA block MAIN OUT, SUB OUT, OUTPUT 1-10: 108 dB typ.</p> <ul style="list-style-type: none"> * All sampling frequency
Crosstalk@ 1 kHz	<p>INPUT 1-8→MAIN OUT: -98 dB typ. (PAD: ON, GAIN: min.)</p> <ul style="list-style-type: none"> * Internal Direct Monitor Mixer setting Stereo Link: ON, Input channel fader: Unity only two channels which are adjacent each other. * All sampling frequency
Built-in Sound Generator (Fantom VS)	<p>Parts: 16 parts Maximum Polyphony: 128 voices Wave Memory: 128 M bytes (16-bit linear equivalent) Preset: Patches 1,152 + 256 (GM2) Rhythm Sets 19 + 9 (GM2) ARX Series Expansion: 1 slot</p>
Display	<p>VS-700C Console 32 characters, 2 lines (backlit LCD) x 2 40 characters, 2 lines (backlit LCD) x 1</p>
Connectors	<p>VS-700C Console AUX IN jack: 1/4 inch phone type PHONES jacks (PHONES1, 2): Stereo 1/4 inch phone type FOOT SW jacks (FOOT SW 1, 2): 1/4 inch phone type USB connector: USB Type B AC Inlet</p> <p>VS-700R I/O INPUT jacks (1-8): XLR type, 1/4 inch TRS phone type MONITOR MAIN jacks (L/R): XLR type MONITOR SUB jacks (L/R): 1/4 inch TRS phone type OUTPUT jacks (1-10): 1/4 inch TRS phone type WORD CLOCK connector (IN, OUT): BNC type DIGITAL 1 connectors (AES/EBU IN, OUT): XLR type (COAXIAL IN, OUT): RCA phono type DIGITAL 2 connectors (ADAT IN, OUT): Optical type MIDI connectors (IN, OUT): 5-pin DIN type USB connector: USB type B AC Inlet</p> <ul style="list-style-type: none"> * XLR type: 1 GND, 2 HOT, 3: COLD
Power Supply	<p>AC 117 V, AC 230 V, AC 240 V (50/60 Hz)</p>
Current Consumption, Power Consumption	<p>VS-700C Console: 0.31 A, 31 W (AC 117 V) 0.21 A, 31 W (AC 230 V / AC 240 V) VS-700R I/O: 0.51 A, 33 W (117 V) 0.35 A, 39 W (AC 230 V / AC 240 V)</p>

Specifications

Dimensions	VS-700C Console: 730 (W) x 430.9 (D) x 126.5 (H) mm 28-3/4 (W) x 17 (D) x 5 (H) inches VS-700R I/O: 433.9 (W) x 348.4 (D) x 87.3 (H) mm 17-1/8 (W) x 13-3/4 (D) x 3-7/16 (H) inches
Weight	VS-700C Console: 10.2 kg 22 lbs 8 oz VS-700R I/O: 5.3 kg 11 lbs 11 oz
Accessories	Power Cord x 2 USB Cable Dedicated Connection Cable VS-700R Rackmount Brackets x 2 Getting Started VS-700 Owner's Manual SONAR 8 User's Guide Shortcuts and Quick Keys Guide SONAR 8 DVD-ROM Beatscape DVD-ROM Dimension Pro DVD-ROM SONAR 8 additional content DVD-ROM SONAR V-STUDIO 700 CD-ROM
Options	Pedal Switch Roland DP-2

* 0dBu=0.775Vrms

* In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.

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cf.

For the index of Fantom VS, refer to
"Index (Fantom VS)" (p. 179).

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MEMO

For EU Countries



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Ai sensi dell'art. 13 del D.Lgs. 25 luglio 2005 n. 151.
- ES** Este símbolo indica que en los países de la Unión Europea este producto debe recogerse aparte de los residuos domésticos, tal como está regulado en cada zona. Los productos con este símbolo no se deben depositar con los residuos domésticos.
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- PL** Symbol oznacza, że zgodnie z regulacjami w odpowiednim regionie, w krajach UE produktu nie należy wyrzucać z odpadami domowymi. Produktów opatrzonych tym symbolem nie można utylizować razem z odpadami domowymi.
- CZ** Tento symbol udává, že v zemích EU musí být tento výrobek sbíráán odděleně od domácího odpadu, jak je určeno pro každý region. Výrobky nesoucí tento symbol se nesmí vyhazovat spolu s domácím odpadem.
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- LV** Šis simbols norāda, ka ES valstīs šo produktu jāievāc atsevišķi no mājsaimniecības atkritumiem, kā noteikts katrā reģionā. Produktus ar šo simbolu nedrīkst izmest kopā ar mājsaimniecības atkritumiem.
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- GR** Το σύμβολο αυτό υποδηλώνει ότι στις χώρες της Ε.Ε. το συγκεκριμένο προϊόν πρέπει να συλλέγεται χωριστά από τα υπόλοιπα οικιακά απορρίμματα, σύμφωνα με όσα προβλέπονται σε κάθε περιοχή. Τα προϊόντα που φέρουν το συγκεκριμένο σύμβολο δεν πρέπει να απορρίπτονται μαζί με τα οικιακά απορρίμματα.

For the USA

DECLARATION OF CONFORMITY Compliance Information Statement

Model Name : VS-700C, VS-700R
Type of Equipment : USB Audio Interface and Controller
Responsible Party : Cakewalk, Inc.
Address : 268 Summer Street Boston, MA 02210 USA
Telephone : (617) 423-9004

For EU Countries



This product complies with the requirements of EMC 2004/108/EC and LVD 2006/95/EC.

For the USA

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Unauthorized changes or modification to this system can void the users authority to operate this equipment.
This equipment requires shielded interface cables in order to meet FCC class B Limit.

For Canada

NOTICE

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

AVIS

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

For C.A. US (Proposition 65)

WARNING

This product contains chemicals known to cause cancer, birth defects and other reproductive harm, including lead.

For China

有关产品中所含有害物质的说明

本资料就本公司产品中所含的特定有害物质及其安全性予以说明。

本资料适用于 2007 年 3 月 1 日以后本公司所制造的产品。

环保使用期限



此标志适用于在中国国内销售的电子信息产品，表示环保使用期限的年数。所谓环保使用期限是指在自制造日起的定期限内，产品中所含的有害物质不致引起环境污染，不会对人身、财产造成严重的不良影响。

环保使用期限仅在遵照产品使用说明书，正确使用产品的条件下才有效。
不当的使用，将会导致有害物质泄漏的危险。

产品中有毒有害物质或元素的名称及含量

部件名称	有毒有害物质或元素					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬(Cr(VI))	多溴联苯(PBB)	多溴二苯醚(PBDE)
外壳(壳体)	×	○	○	○	○	○
电子部件(印刷电路板等)	×	○	×	○	○	○
附件(电源线、交流适配器等)	×	○	○	○	○	○

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因根据现有的技术水平，还没有什么物质能够代替它。

cakewalk
by Roland

